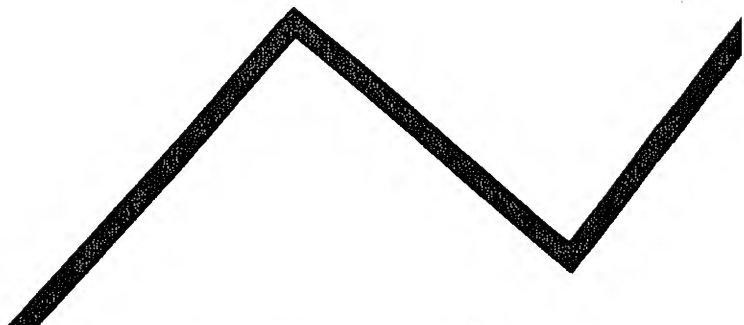


STOCKPILE REPORT to the CONGRESS

JULY—DECEMBER 1969



OFFICE OF EMERGENCY PREPAREDNESS
EXECUTIVE OFFICE OF THE PRESIDENT
WASHINGTON, D.C. 20504

EXECUTIVE OFFICE OF THE PRESIDENT
OFFICE OF EMERGENCY PREPAREDNESS
WASHINGTON, D.C. 20504

OFFICE OF THE DIRECTOR

April 17, 1970

Honorable Spiro T. Agnew
President of the Senate

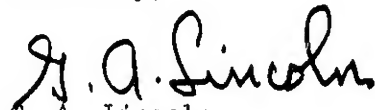
Honorable John W. McCormack
Speaker of the House of Representatives

Sirs:

Pursuant to Section 4 of the Strategic and Critical Materials Stock Piling Act, Public Law 520, 79th Congress, there is presented herewith the semiannual report to the Congress on the strategic and critical materials stockpiling program for the period July 1 to December 31, 1969.

A statistical supplement to this report was transmitted to you on March 4, 1970.

Sincerely,


G. A. Lincoln
Director

CONTENTS

	Page
Introduction	1
Supply-Requirements Studies	4
Summary of Government Inventories of Strategic and Critical Materials	7
Status of Stockpile Objectives	8
Summary of Government Inventories, Objectives, Excesses and Balance of Disposal Authorizations (Basic Stockpile Materials), December 31, 1969 (Table)	10
Other Materials in Government Inventories	14
Summary of Government Inventories and Balance of Disposal Authorizations Covering Materials for Which There Are No Stockpile Objectives, December 31, 1969 (Table)	14
National Stockpile Activities	15
Procurement and Upgrading	15
Disposal Program Activity	17
Sales Commitments	17
Disposals of Strategic and Critical Materials (Table)	20
Legislation Relative to Stockpile Disposal	23
Notes on Strategic and Critical Materials	25
Activities of the General Services Administration	31
Activities of the Department of Commerce	33
Activities of the Department of State	35
Activities of the Department of Agriculture	36

CONTENTS (Continued)

Activities of the Department of the Interior	38
Reports Issued by the Bureau of Mines	39
Reports Issued by the U.S. Geological Survey	40
Expenditures of Stockpile Funds, by Type, Cumulative and for First Half Fiscal Year 1970 (Table)	42
Total Obligations and Expenditures of Stockpiling Funds, Cumulative and by Fiscal Period Through December 31, 1969 (Table)	43

INTRODUCTION

Under Presidential Executive Order 11051, the Director of the Office of Emergency Preparedness is directed to determine what materials are strategic and critical as well as the quality and quantities of such materials which shall be stockpiled. Based on this policy the stockpiles should contain, as exactly as can be determined, the types of materials and the quantities which are needed for national security purposes. Excesses to needs should be disposed of in an orderly way and in accordance with the laws governing such disposals, i.e., the protection of the Government from avoidable loss and the protection of producers, processors, and consumers from avoidable disruption of their usual markets.

This approach to the stockpile is consistent both with good administration and the national security responsibilities of our Government. It seems sound to proceed with disposal of excesses which cost the Government something to store, which are in effect also costing the Government the equivalent of the interest on their value, and which may be in demand by our economy. Cadmium, cobalt, tungsten, and fluorspar are examples of materials in short supply. While some materials in excess may not be in short supply at the moment, good business management requires that the materials be made available for disposal so that they can be placed in the markets as opportunities develop.

As of December 31, 1969, the mate-

rials in the stockpile on an uncommitted basis were estimated to be valued at \$7.0 billion.¹ Some \$2.6 billion of these materials were in excess. About \$1.0 billion of this excess was authorized for sale by Congress. Some of these excess materials cannot be disposed of in a short term without disrupting the market and depressing prices or injuring industry. A number of additional disposal bills have been or will be presented to Congress for materials totaling approximately another \$1.0 billion. Several of these reflect recent changes in objectives for particular commodities; such changes are made from time to time.

The President's Budget Message for FY 1971 states that stockpile policy studies are underway. One of the results of these recent studies is the decision to eliminate the general discounting of production facilities in the U.S. and Canada because of concentration. This principle was originally introduced into stockpile objective planning in 1954 by an administrative action of the Director of the Office of Defense Mobilization. The original rationalization for this concentration allowance was possible bombing of facilities (World War II experience). Experience in World War II and two limited wars, however, does not provide a basis for such discounts.

It was applied, initially, to cover loss of any domestic production facility which supplied more than 20 percent of the

¹For definition of value, see footnote on page 7.

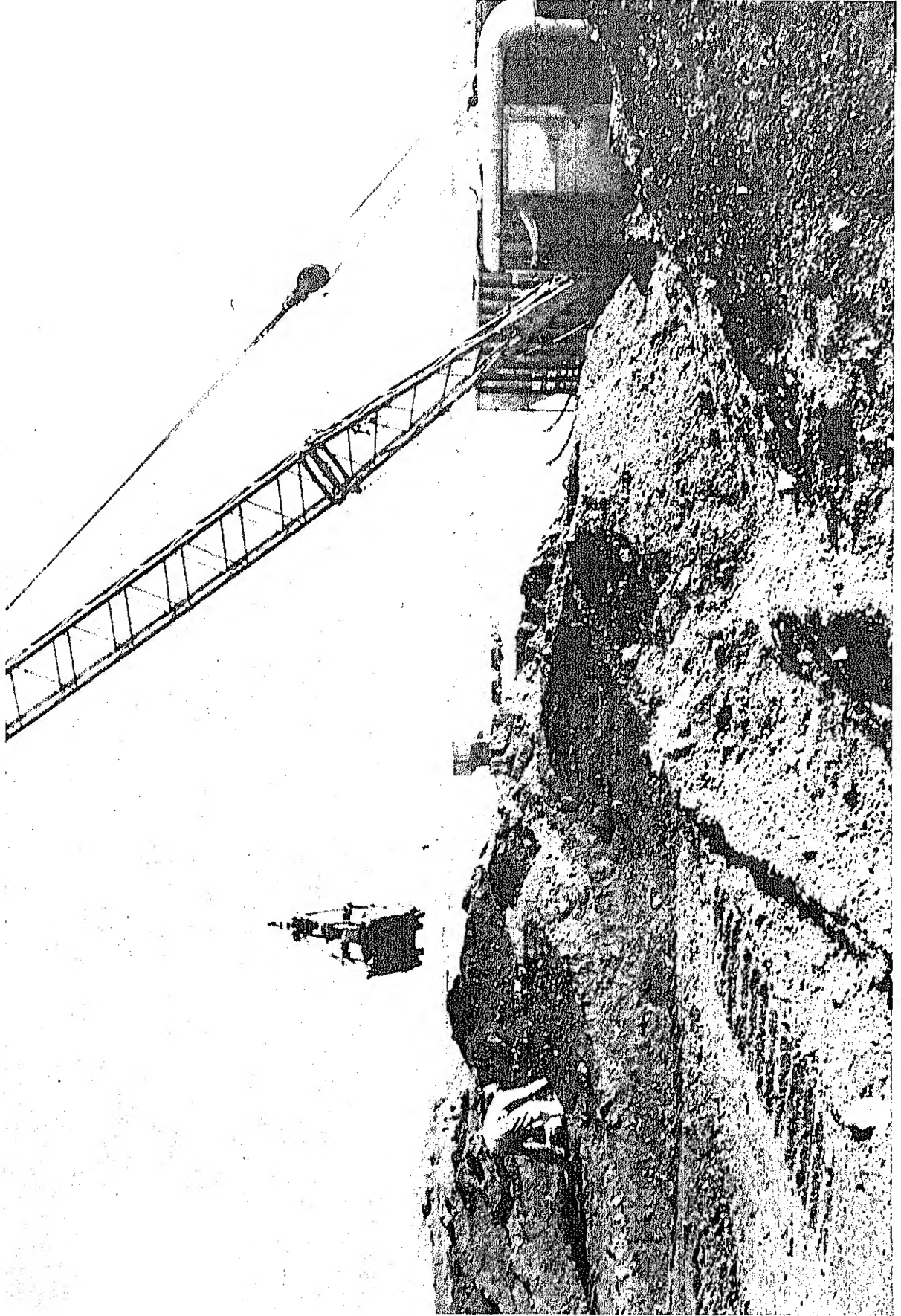
U.S. emergency supply. In 1963, the percentage was increased to 25 percent. In 1966, the application criterion was changed so that no concentration factoring was to be made in supply estimates if alternate production facilities existed.

On February 7, 1970, the general use of concentration factoring was discontinued. Changes in concentration factoring will substantially reduce some objectives. Objective changes resulting from this and other policy changes will be noted in the January-June 1970 report.

The studies and management changes being initiated will modernize stockpile management and place it in a responsive framework for today's national security interests. As a part of the program to keep all informed on stockpile matters, changes in policy and management will be detailed in future stockpile reports.

The report which follows covers principal activities in stockpile planning and management carried out during July 1 through December 31, 1969. It will be the last report where inventory data will be on an on-hand basis. On-hand inventory data can be misleading since it includes, as a Government asset, material which has been sold but not yet shipped. Of the \$7.2 billion in on-hand inventories, \$0.2 billion is sold but unshipped; thus leaving \$7.0 billion as the estimated uncommitted total value of the inventories. Effective with the January-June 1970 report, all inventory data will be on an uncommitted basis.





Outshipment loading of excess manganese.

SUPPLY-REQUIREMENTS STUDIES

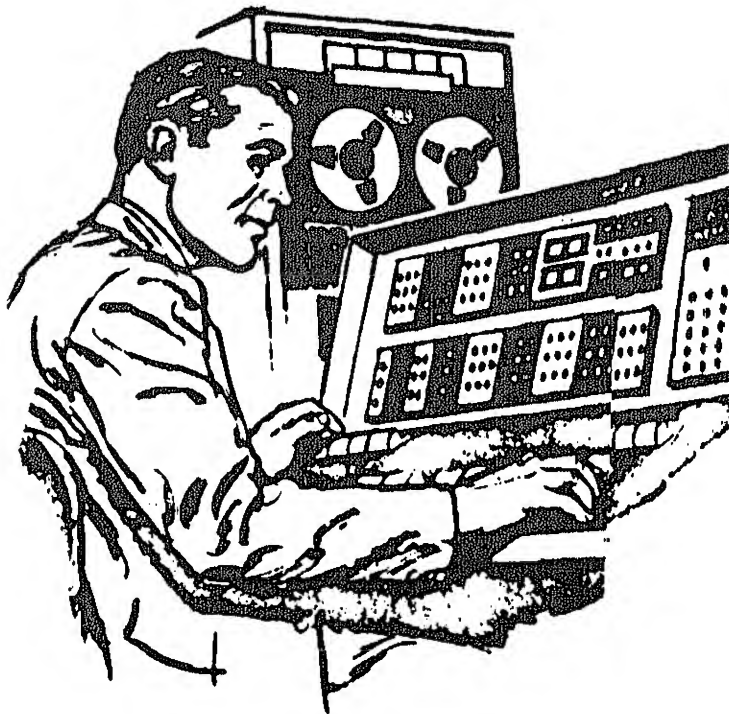
In order to assure that current and future requirements and availabilities of strategic and critical materials are reflected in the National Stockpile, OEP monitors in quantitative and qualitative terms, materials that are stockpiled and initiates new supply-requirements analyses whenever reviews indicate that the status of a particular material has substantially changed or is likely to change in the future. Both conventional war and nuclear war requirements are calculated, and the controlling inventory level is set at the higher estimated level. No review of nuclear war requirements was made in the July-December period.

Strategic and critical materials stockpiling guidance is being reviewed to assure consistency with national security policy, relevant U.S. military capabilities, and trends in international affairs. As changes are made in stockpiling guidance, new supply-requirements analyses will be made.

Conventional War. Conventional war stockpile objectives are calculated for a three-year war estimated to begin not less than one nor more than two years in the future. To determine the size and scope of the war effort including wartime essential civilian needs, OEP projects the gross national product and its various components through the intervening years prior to the outbreak of the war and then through each of the three war years.

New GNP projections based upon new military estimates of mobilization were completed in 1968 and work was begun on new supply-requirements studies for all stockpiled materials. Determinations on 15 materials in the stockpile were

completed during July-December 1969. Of this total, 12 determinations were made for basic materials and three on subobjectives for upgraded forms of stockpiled materials. The new and old levels of these objectives are indicated below.



CONVENTIONAL WAR STOCKPILE OBJECTIVES

Material	Unit	New Objective	Old Objective
Antimony	ST	50,500	25,500
Bismuth	LB	2,100,000	2,400,000
Castor Oil	LB	<u>50,000,000</u>	<u>22,000,000</u>
Castor Oil	LB-B	37,500,000	9,500,000
Sebacic Acid	LB-E	12,500,000	12,500,000
	(gw)LB	(5,000,000)	(5,000,000)
Celestite	ST	23,750	10,300
Diamond, Industrial:			
Stones	KT	20,000,000	16,500,000
Lead	ST	530,000	0
Magnesium	ST	78,000	90,000
Mica, Phlogopite			
Block	LB	150,000	17,000
Molybdenum	LB	<u>36,500,000</u>	<u>40,000,000</u>
Molybdenum Disulphide	LB-B	17,115,000	21,250,000
Molybdic Oxide	LB-E	10,865,000	10,250,000
	(gw)LB	(10,600,000)	(10,000,000)
Ferromolybdenum	LB-E	8,520,000	8,500,000
	(gw)LB	(7,500,000)	(7,500,000)
Rutile	SDT	100,000	200,000
Titanium	ST	33,500	37,500
Zinc	ST	560,000	0

B	Basic material
E	Basic material equivalent
gw	Gross weight
KT	Carat
LB	Pound
ST	Short Ton
SDT	Short Dry Ton



Guard dog and handler patrolling storage site. Use of guard dogs adds a great deal to security.

SUMMARY OF GOVERNMENT INVENTORIES OF STRATEGIC AND CRITICAL MATERIALS

As of December 31, 1969, the estimated value¹ of strategic materials held in all Government inventories amounted to \$7.2 billion, this including excess material sold but not yet shipped from inventory. Acquisition cost was \$6.6 billion. Of this total, \$4.3 billion at cost was in the National Stockpile, \$1.4 billion in the Supplemental Stockpile, \$0.9 billion in the Defense Production Act inventory, and \$0.02 million in the Commodity Credit Corporation inventory. These Government inventories included materials considered excess to stockpile needs which were valued at approximately \$2.8 billion at cost or \$2.8 billion at estimated market value. Over 80 percent of the market value of these excesses (\$2.8 billion) was made up of 12 materials: *aluminum, metallurgical*

grade bauxite (Jamaica and Surinam), *metallurgical grade chromite* (upgraded forms and subspecification ores), *cobalt, industrial diamond bort and stones, lead, metallurgical grade manganese, quartz crystals, tin, tungsten, and zinc.*

The following table is a summary of the total value of all materials carried in Government inventories including those with quantities in excess of established stockpile objectives as of December 31, 1969. It indicates the acquisition cost and estimated market value of materials with inventories meeting stockpile objectives, and materials with inventories excess to stockpile objectives. The market values do not reflect the revenue that would be realized at time of sale.

¹Market values are estimated from prices at which similar materials are being traded; or in the absence of trading data, at an estimate of the price which would prevail in the market. Prices used are unadjusted for normal premiums and discounts relating to contained qualities or for normal freight allowances. *The market values do not necessarily reflect the amount that would be realized at time of sale. Stockpile value is based on inventories in storage and includes quantities sold but not shipped.*

**SUMMARY OF GOVERNMENT INVENTORIES OF
STRATEGIC AND CRITICAL MATERIALS
December 31, 1969**

	Acquisition Cost	Market Value
I. Total Inventories		
National Stockpile	\$4,321,671,300	\$5,196,071,700
Supplemental Stockpile	1,443,878,200	1,507,874,200
Defense Production Act	848,990,600	519,059,800
Commodity Credit Corporation	<u>23,600</u>	<u>22,400</u>
 Total on Hand	 6,614,563,700	 7,223,028,100
On Order	83,764,900	114,380,500
 II. Inventories Within Objective		
Total on Hand	3,773,446,700	4,467,164,300
 III. Inventories Excess to Objective		
Total on Hand	2,841,117,000	2,755,863,800

Source: General Services Administration

STATUS OF STOCKPILE OBJECTIVES

The bar chart below shows the estimated market value of the objectives established and the extent to which materials on hand in all Government inventories (National Stockpile, Supplemental

Stockpile, DPA, and CCC) meet these objectives. The figures do not include the quantities on hand in all Government inventories which were in excess of stockpile objectives (\$2.8 billion).

STATUS OF STOCKPILE OBJECTIVES

AS OF DECEMBER 31, 1969

(In Billions of Dollars)

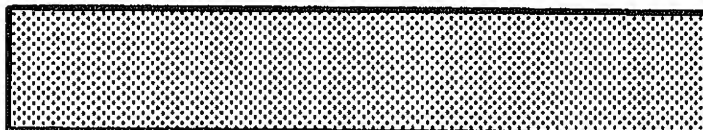
Market Value

OBJECTIVES



\$5.1

ON HAND
TOWARD
OBJECTIVES



\$4.5

The objective, inventory, excess, and balance of disposal authorizations, for each material on the Strategic and Critical Materials List, are shown in the following summary. As of December 31, 1969, total quantities of stockpile grade materials on hand and on order for all Government-owned inventories were in excess or equal to the stockpile objectives for 62 of the 76 basic materials on the List of Strategic and Critical Materials for Stockpiling. In addition to specification grade materials, Government inventories contain some non-specification grades not credited to stockpile objectives. Much of the nonspecification grade materials in the National Stockpile was acquired by the transfer of Gov-

ernment-owned surpluses to the stockpile after World War II. Several were of specification grade when acquired but no longer qualify due to changes in industry practices and other technological advances.

Disposal balances shown in the following summary represent Congressional authorizations for sales of excess materials in the National and Supplemental Stockpiles or, in the case of DPA materials, sales approved by OEP. Planning is continuing for the disposal of all remaining excesses. Inventory changes during the report period were due primarily to disposals or to reclassification, upgrading, and other adjustments in the inventories.

**SUMMARY OF GOVERNMENT INVENTORIES, OBJECTIVES,
EXCESSES AND BALANCE OF DISPOSAL AUTHORIZATIONS**

Basic Stockpile Materials
As of December 31, 1969

(Market Value - \$ Millions)

Commodity	Unit	Controlling Objective*	Total Inventory ^{1 2}	Market Value ³	Excess ²	Market Value ³	Balance of Disposal Authorization
1. Aluminum	ST	450,000	1,307,146	\$732.0	857,146	\$480.0	850,255 ⁴
2. Aluminum oxide, fused	ST	300,000	428,554	58.7	128,554	16.5	128,554
3. Antimony	ST	50,500	46,746	97.5	159	0.3	0
4. Asbestos, amosite	ST	40,000	63,688	13.5	23,688	5.0	10,757
5. Asbestos, chrysotile	ST	13,700	14,708	6.4	3,752 ⁵	0.6	305
6. Bauxite, metal, Jamaica	LDT	5,000,000	8,858,881	103.1	3,858,881	44.9	714,000
7. Bauxite, metal, Surinam	LDT	5,300,000	7,889,967	121.1	2,589,967 ⁶	39.8	0
8. Bauxite, refractory	LCT	173,000	176,853	7.6	3,853	0.2	0
9. Beryl	ST	28,000	42,598	72.1	14,598 ⁷	27.8	4,974
10. Bismuth	LB	2,100,000	2,904,606	17.4	804,606 ⁶	4.8	476,986
11. Cadmium	LB	6,000,000	10,186,116	40.7	4,186,116 ⁵	16.7	0
12. Castor Oil	LB	50,000,000	68,566,033	11.5	18,566,033 ⁵	2.6	0
13. Celestite	ST	23,750	30,308	0.8	16,767	0.3	12,680
14. Chromite, chemical	SDT	260,000	1,259,040	28.1	999,040 ⁸	19.1	111,138
15. Chromite, metallurgical	SDT	3,650,000	5,772,482	475.7	2,122,482 ⁹	297.5	975,565
16. Chromite, refractory	SDT	400,000	1,226,931	18.6	826,931 ⁵	12.6	0
17. Cobalt	LB	38,200,000	84,289,302	185.4	46,089,302 ⁵	101.4	2,365,729
18. Columbium	LB	1,176,000	10,291,035	21.2	9,115,035	15.6	1,567,170
19. Copper	ST	775,000	260,483	275.7	0	0	0
20. Cordage fibers, abaca	LB	50,000,000	104,096,262	19.3	54,096,262	10.0	48,559,114
21. Cordage fibers, sisal	LB	200,000,000	202,260,556	18.2	2,260,556	0.2	0
22. Diamond dies, small	PC	25,000	21,523	0.8	438	0.02	0
23. Diamond, industrial bort	KT	24,700,000	42,611,479	101.4	17,911,479 ⁵	40.3	0
24. Diamond, industrial stones	KT	20,000,000	26,730,386	362.8	6,730,386 ⁶	92.9	1,769,650
25. Feathers and down	LB	3,000,000	3,555,729	12.4	555,729	1.0	0
26. Fluorspar, acid grade	SDT	540,000	1,102,942	63.0	212,942 ^{6 10}	11.8	0
27. Fluorspar, metallurgical	SDT	850,000	411,788	18.9	0	0	0
28. Graphite, natural, Ceylon	ST	5,500	5,886	1.3	386 ⁶	0.08	0
29. Graphite, natural, Malagasy	ST	18,000	32,630	3.7	14,691	1.7	14,340
30. Graphite, other	ST	2,800	4,312	0.8	1,512	0.2	0
31. Iodine	LB	8,000,000	8,011,839	9.9	11,839	0.01	0
32. Jewel bearings	PC	57,500,000	56,566,715	23.8	14,726,698 ¹¹	6.2	0
33. Kyanite, Mullite	SDT	4,800	4,820	0.5	20	0.002	0
34. Lead	ST	530,000	1,152,737	380.4	622,737 ⁶	205.5	121,561
35. Magnesium	ST	78,000	117,075	85.8	39,075 ⁶	28.6	25,103
36. Manganese, battery, natural	SDT	135,000	308,839	18.2	173,839 ⁶	10.2	0
37. Manganese, battery, synthetic dioxide	SDT	1,900	23,553	11.5	21,653 ¹²	10.6	15,975
38. Manganese ore, chemical A	SDT	35,000	146,914	10.3	111,914 ⁵	7.8	0
39. Manganese ore, chemical B	SDT	35,000	100,838	5.0	65,838 ⁵	3.3	0

Commodity	Unit	Controlling Objective*	Total Inventory ^{1 2}	Market Value ³	Excess ²	Market Value ³	Balance of Disposal Authorization
40. Manganese, metallurgical	SDT	4,000,000	12,638,305	\$417.7	8,638,305 ⁵	\$246.4	2,521,861
41. Mercury	FL	126,500	200,090	100.0	73,590 ⁶	36.8	0
42. Mica, muscovite block St./better	LB	6,000,000	15,233,138	61.5	8,392,438 ¹³	21.1	6,966,437
43. Mica, muscovite film, 1 & 2 quality	LB	2,000,000	1,468,982	17.0	57,507	0.06	6,430
44. Mica, muscovite splittings	LB	19,000,000	43,798,613	52.6	24,798,613	29.8	21,452,261
45. Mica, phlogopite block	LB	150,000	168,586	0.05	151,867	0.03	151,870
46. Mica, phlogopite splittings	LB	950,000	4,928,002	7.9	3,978,002	6.4	3,572,961
47. Molybdenum	LB	36,500,000	53,168,341	95.2	16,668,341 ⁶	28.9	2,687,990
48. Nickel	ST	55,000	50,000 ¹⁴	128.0	0	0	0
49. Opium	AvLB	143,000	143,464	12.1	1,950	0.09	1,850
50. Platinum group, iridium	TrOz	17,000	17,256	2.8	256	0.04	0
51. Platinum group, palladium	TrOz	1,300,000	1,081,949	41.1	0	0	0
52. Platinum group, platinum	TrOz	555,000	450,035	59.6	0	0	0
53. Pyrethrum	LB	25,000	63,375	0.6	38,375 ¹⁵	0.4	0
54. Quartz crystals	LB	320,000	5,167,835	55.5	4,847,835	51.8	4,498,757
55. Quinidine	OZ	2,000,000	1,600,377	3.6	0	0	0
56. Quinine	OZ	4,130,000	3,548,161	4.9	0	0	0
57. Rare earths	SDT	6,500	13,521	4.9	7,021	2.5	5,288
58. Rubber	LT	385,000	369,992	207.2	0	0	0
59. Rutile	SDT	100,000	50,927	8.1	0	0	0
60. Sapphire & Ruby	KT	18,000,000	16,305,502	0.2	0	0	0
61. Selenium	LB	475,000	474,774	3.3	0	0	0
62. Shellac	LB	3,900,000	9,784,327	3.5	5,884,327 ⁵	1.9	25,190
63. Silicon carbide, crude	ST	30,000	196,453	43.0	166,453 ¹⁵	36.5	0
64. Silver (fine)	TrOz	165,000,000	165,000,000	297.0	0	0	0
65. Sperm oil	LB	23,400,000	23,402,677	3.5	2,677	0	0
66. Talc, steatite block & lump	ST	200	1,231	0.4	1,031	0.3	1,031
67. Tantalum	LB	3,400,000	4,349,163	41.7	949,163 ¹⁶	9.7	0
68. Thorium oxide	ST	40	40 ¹⁷	0.3 ¹⁷	0	0	0
69. Tin	LT	232,000	256,095	1,035.4	24,095	97.4	23,702
70. Titanium sponge	ST	33,500	30,738	74.1	0	0	7,978
71. Tungsten	LB	44,000,000	169,352,403	470.7	125,352,403 ⁵	346.4	2,243,115
72. Vanadium	ST	2,100	5,306	33.4	3,206	20.3	2,808
73. Vegetable tannin, chestnut	LT	9,500	28,256	6.6	18,756	4.4	12,704
74. Vegetable tannin, quebracho	LT	50,600	192,372	51.7	141,772	38.1	105,346

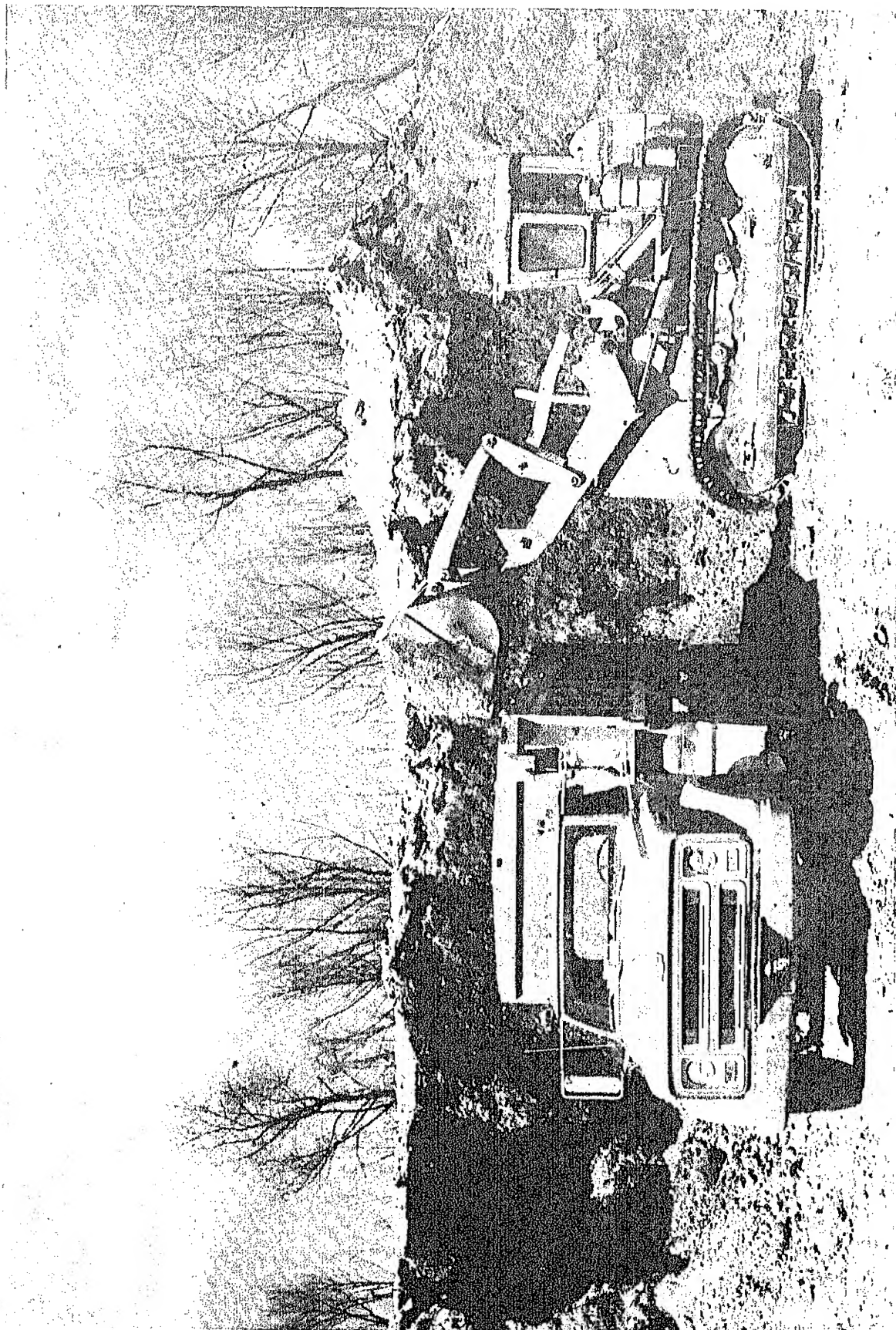
Commodity	Unit	Controlling Objective*	Total Inventory ^{1 2}	Market Value ³	Excess ²	Market Value ³	Balance of Disposal Authorization
75. Vegetable tannin, wattle	LT	9,500	37,206	8.5	27,706	6.4	21,490
76. Zinc	ST	560,000	1,142,185	354.1	582,185 ⁶	180.5	64,859

FOOTNOTES

- ¹Total inventory consists of stockpile and nonstockpile grades.
- ²Includes quantities committed for sale but not shipped, as well as quantities of nonstockpile quality materials.
- ³Market values are estimated from prices at which similar materials are being traded; or in the absence of trading data, at an estimate of the price which would prevail in the market. Prices used are unadjusted for normal premiums and discounts relating to contained qualities or normal freight allowances. *The market values do not necessarily reflect the amount that would be realized at time of sale.*
- ⁴Committed for sale but undelivered under long-term contracts.
- ⁵Balance of excess pending Congressional approval.
- ⁶Balance of excess pending submission to the Congress.
- ⁷Excess quantity includes 3,617 ST in beryllium copper master alloy and 3,160 ST in beryllium metal.
- ⁸Disposal planning on balance of excess currently underway.
- ⁹Excess is in ferrochrome and specification ores.
- ¹⁰Excludes 350,000 SDT credited to metallurgical fluorspar.
- ¹¹Factory inspecting feasibility of reworking bearings to meet stockpile specifications.
- ¹²Unauthorized excess held pending completion of present sales program.
- ¹³Excludes 840,700 LBS credited to mica, muscovite film.
- ¹⁴Includes 10,000 short tons *loaned* from stockpile under Section 5 of the Strategic and Critical Materials Stock Piling Act.
- ¹⁵Balance of excess pending supply-requirements study.
- ¹⁶Materials required in upgrading.
- ¹⁷Thorium nitrate credited as 40 ST thorium oxide, \$0.3 million market value.
- *Defense Mobilization Order 8600.1A provides that strategic stockpile objectives shall be adequate for conventional or nuclear war, whichever shows the largest supply-requirements deficit to be met by stockpiling.

ABBREVIATIONS

FL - Flask	OZ - Ounce
KT - Carat	PC - Piece
LB - Pound	SDT - Short Dry Ton
LCT - Long Calcined Ton	ST - Short Ton
LDT - Long Dry Ton	TrOz - Troy Ounce
LT - Long Ton	



Federal Property Act excess metallurgical bauxite, sold under long-term contract, being outshipped.

OTHER MATERIALS IN GOVERNMENT INVENTORIES

Inventories of materials that have been removed from the stockpile list, and

of other materials for which there are no stockpile objectives, are indicated in the table below. These inventories are not included in the previous tabulation.

SUMMARY OF GOVERNMENT INVENTORIES AND BALANCE OF DISPOSAL AUTHORIZATIONS COVERING MATERIALS FOR WHICH THERE ARE NO STOCKPILE OBJECTIVES

As of December 31, 1969

(Market Value - \$ Millions)

Commodity	Unit	Total Inventory ¹	Market Value	Balance of Disposal Authorization
Asbestos, crocidolite	ST	45,599	\$ 8.4	45,409
Colemanite	LDT	41,924 ²	0.4	0
Corundum	ST	1,964 ³	0.05	0
Diamond tools	PC	64,178 ⁴	0.8	0
Mica, muscovite block, St. B/Lower	LB	4,079,162	8.2	3,967,580
Mica, muscovite film, 3rd quality	LB	461,925	3.1	461,925
Platinum group metals, ruthenium	TrOz	2,500 ²	0.1	0
Silk noils	LB	22,602 ²	0.02	0
Talc, steatite ground	ST	3,900	0.02	3,900
Thorium nitrate	LB	3,666,397 ⁵	15.3	3,166,397
Zirconium ore, baddeleyite	SdT	16,514	1.0	16,514
Zirconium ore, zircon	SdT	1,720	0.002	1,720

¹ Includes quantities that have been committed but not shipped.

² Total inventory committed.

³ Pending Congressional approval.

⁴ Deferred by the Congress.

⁵ Includes 80,000 pounds credited to thorium oxide objective, \$0.3 million market value.

NATIONAL STOCKPILE ACTIVITIES

PROCUREMENT AND UPGRADING

The OEP Strategic Stockpile Procurement Directive for FY 1970, issued December 12, 1969, provided for cash procurement of 2 million pieces of jewel bearings from the Federal facility at Rolla, North Dakota, and the acquisition of seven commodities in exchange for excess materials. One of these commodities - ferrotungsten - may be acquired either by upgrading or exchange. The Independent Offices Appropriation Act for FY 1970 (PL 91-126) provided legislative authority for the exchange of excess materials for

those needed to fill objectives and the use of excess materials to pay for the costs of upgrading services.

By letters of June 30 and August 29, 1969, OEP authorized GSA to continue procurement under the outstanding 1969 Directive until passage of the Independent Offices Appropriation Act for FY 1970 which was passed on November 26, 1969.

The Procurement Directive for FY 1970 authorized the acquisition of the following strategic and critical materials:

Material	Unit	Methods of Acquisition		
		Cash	Upgrading	Exchange
Asbestos, chrysotile	ST			3,300 ¹
Jewel bearings	PC	2,000,000		
Palladium	TrOz			250,200 ¹
Platinum	TrOz			105,000 ¹
Quinidine	Oz			400,000 ¹
Rutile	SDT			30,000 ¹
Titanium sponge	ST			13,000 ^{1 2}
Tungsten, ferro	Lbs.(W)		300,000(W) ^{1 2 3}	

¹Two year delivery.

²Acquisition to be from domestic processing only.

³Acquisition is authorized by upgrading or through exchange of excess materials.

With the exception of cash purchases of jewel bearings, further contracting for procurement and acquisition was suspended in January 1970. This action was taken to minimize budget impact and to avoid obtaining material which might shortly be determined to be excess in the near future.

Procurement - Cash

Jewel bearings. The Government-owned William Langer Jewel Bearing Plant, Rolla, North Dakota, continued to produce jewel bearings for the National Stockpile and for defense contractors. The plant has been operated by the Bulova

Watch Company, Incorporated, under non-profit contractual and lease agreements with GSA. These agreements expired on December 31, 1969, and were replaced by a new 3-year management operating cost-plus-fixed-fee type contract, effective January 1, 1970 as authorized by PL 90-469.

Jewel bearing production rates have been increasing during the past year, largely due to efforts by the Department of Defense to obtain compliance by defense contractors with its regulations requiring the purchase of bearings from the plant. In 1968, the plant was authorized to increase its operating limit to a rate of 4 million bearings per year. Actual production during calendar year 1969 totaled approximately 3.1 million. The anticipated issuance of strengthened Armed Services Procurement Regulations provisions governing jewel bearing purchases, together with the new plant operational arrangements provided by the new contract, are expected to sustain this high production rate.

The 3-year management operating contract entered into with the Bulova Watch Company, Incorporated, effective January 1, 1970, provides for the operation of the William Langer Jewel Bearing Plant at Rolla, North Dakota, in accordance with provisions of Public Law 90-469. Under the new arrangement, the plant operation will be financed through a revolving fund. Bulova will produce jewel bearings for sale at fixed prices to Government agencies and their contractors and subcontractors, and to GSA for the National Stockpile, utilizing more effective economical business management in the new operation of the plant to improve its efficiency, en-

hance its capabilities, and lower unit prices.

Procurement - Exchange

Palladium. On July 1, 1969, a contract was entered into for 200,000 troy ounces of palladium to be delivered by June 30, 1970. Payment for the palladium is to be made with excess materials available for sale under the stockpile disposal program. Deliveries as of December 31, 1969, totaled 135,431 troy ounces.

Quinidine Sulfate. A contract was entered into on October 23, 1969, for 200,000 avoirdupois ounces of quinidine sulfate to be delivered by October 22, 1971. Payment for the quinidine sulfate is to be made with excess materials available for sale under the stockpile disposal program.

Rutile. On July 1, 1969, a contract was entered into for 5,600 short dry tons of rutile for delivery by July 1, 1971. Payment for the rutile is to be made with excess materials available for sale under the stockpile disposal program.

Titanium sponge. A contract was entered into on July 1, 1969, for 4,000 short tons of titanium sponge to be delivered by June 30, 1970. Payment for the titanium sponge is to be made with excess materials available for sale under the stockpile disposal program. As of December 31, 1969, deliveries totaled 1,548 short tons.

Also on July 1, 1969, a contract was entered into for 2,000 short tons of titanium sponge to be delivered by June 30,

1970. Payment for this material is also to be made with excess materials available for sale under the stockpile disposal program. Deliveries as of December 31, 1969, totaled 496 short tons.

Ferrocolumbium. As of December 31, 1969, there have been no deliveries under contract entered into on March 14, 1969, for furnishing Grade B ferrocolumbium containing 279,000 pounds of columbium. Deliveries are to be completed by March 14, 1971.

Ferromanganese - Palladium. Under contract entered into on August 31, 1967, for the acquisition of 200,000 troy ounces of palladium and the upgrading of manganese ore to 36,000 short tons of medium carbon ferromanganese, deliveries of palladium have been completed and through December 31, 1969, 18,660 short tons of ferromanganese were received. The processing of ferromanganese is continuing under the contract with final delivery to be made not later than June 30, 1971.

Iridium. The contract entered into on May 9, 1969, for furnishing 862 troy ounces of iridium was completed on August 26, 1969.

Platinum. Services are continuing under the contract entered into on March 17, 1969, for refining 200,000 troy ounces of Government-owned platinum. Deliveries under the contract, as of December 31, 1969, totaled 34,092 troy ounces.

Silicomanganese. Under a contract entered into on June 28, 1968, for the conversion of Government-furnished manganese ore to 45,500 short tons of silico-

manganese, deliveries through December 31, 1969, totaled 12,331 short tons. On August 26, 1969, the contract was amended to extend the final delivery date from June 15, 1970, to June 15, 1971.

DISPOSAL PROGRAM ACTIVITY

Disposal sales from all Government inventories during July-December 1969 have shown a significant increase over sales for the January-June period, principally due to larger sales of stockpile aluminum, cobalt, molybdenum, and tungsten. Complete disposition was made of the excess cadmium authorized for sale. During this period, GSA submitted to the 91st Congress proposed legislation for the release of two commodities - *refractory grade chromite* and *shellac* - and supported private disposal bills for cadmium, cobalt, and subspecification fluorspar.

SALES COMMITMENTS

Disposal sales during the period amounted to \$192.4 million - an increase of \$42.8 million over the \$149.6 million realized in January-June 1969. Of the total \$192.4 million, \$68.6 million were from the National and Supplemental Stockpiles, \$95.1 million from the Defense Production Act inventory, and \$28.7 million from other sales (primarily nickel and silver not included in stockpile inventories).

Approximately 90 percent (\$173.9 million) of total disposals for the period were made up by nine materials - *aluminum*, \$24.4 million; *cobalt*, \$14.7 million; *lead*, \$7.7 million; *magnesium*, \$5.1 million; *molybdenum*, \$17.2 million; *nickel*, \$10.3 million; *silver*, \$18.0 million; *tin*,

\$5.9 million; and *tungsten*, \$70.6 million. page 19).

Cumulative sales since the inception of the disposal program total approximately \$3.4 billion. (Figures 1 and 2,

A list of the materials sold during July-December is shown in the table which follows on page 20 .



Titanium being delivered to the stockpile.

Figure 1

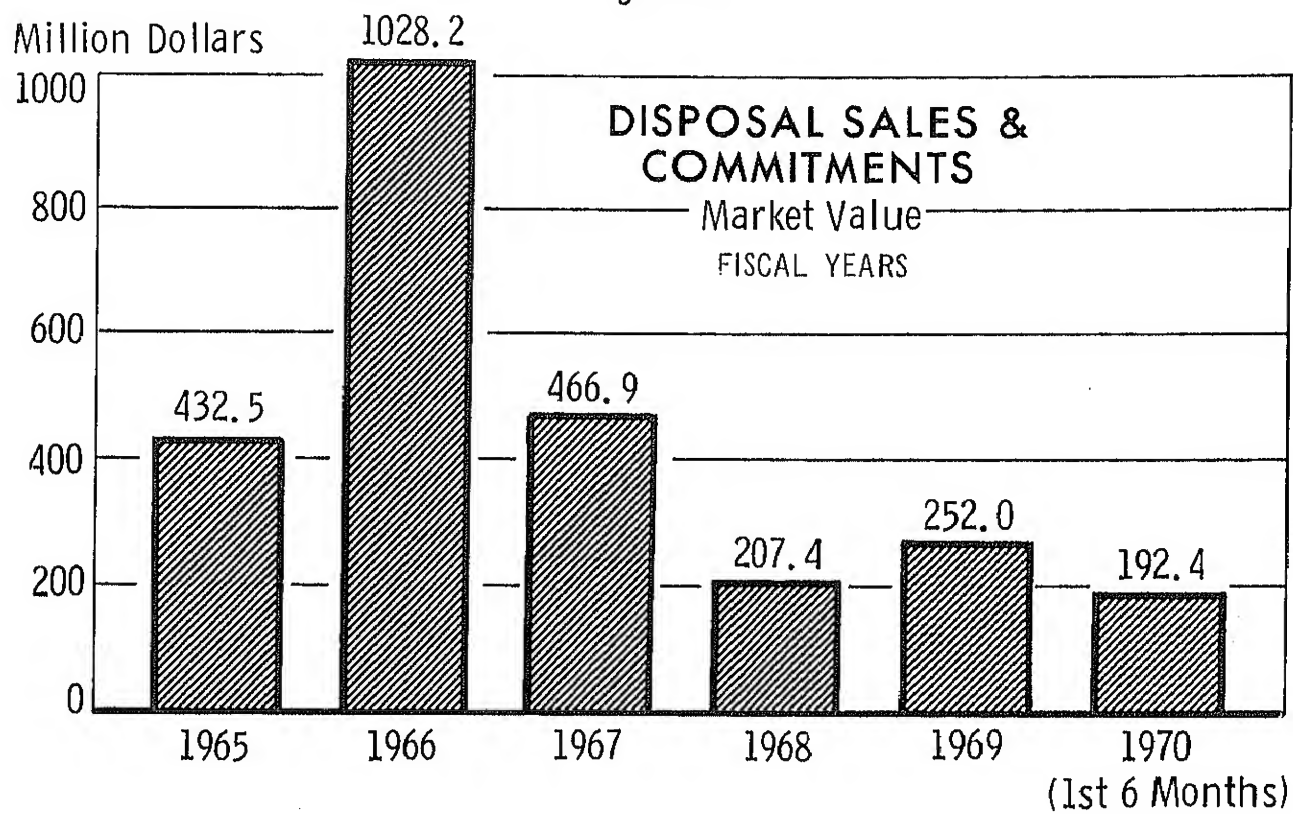
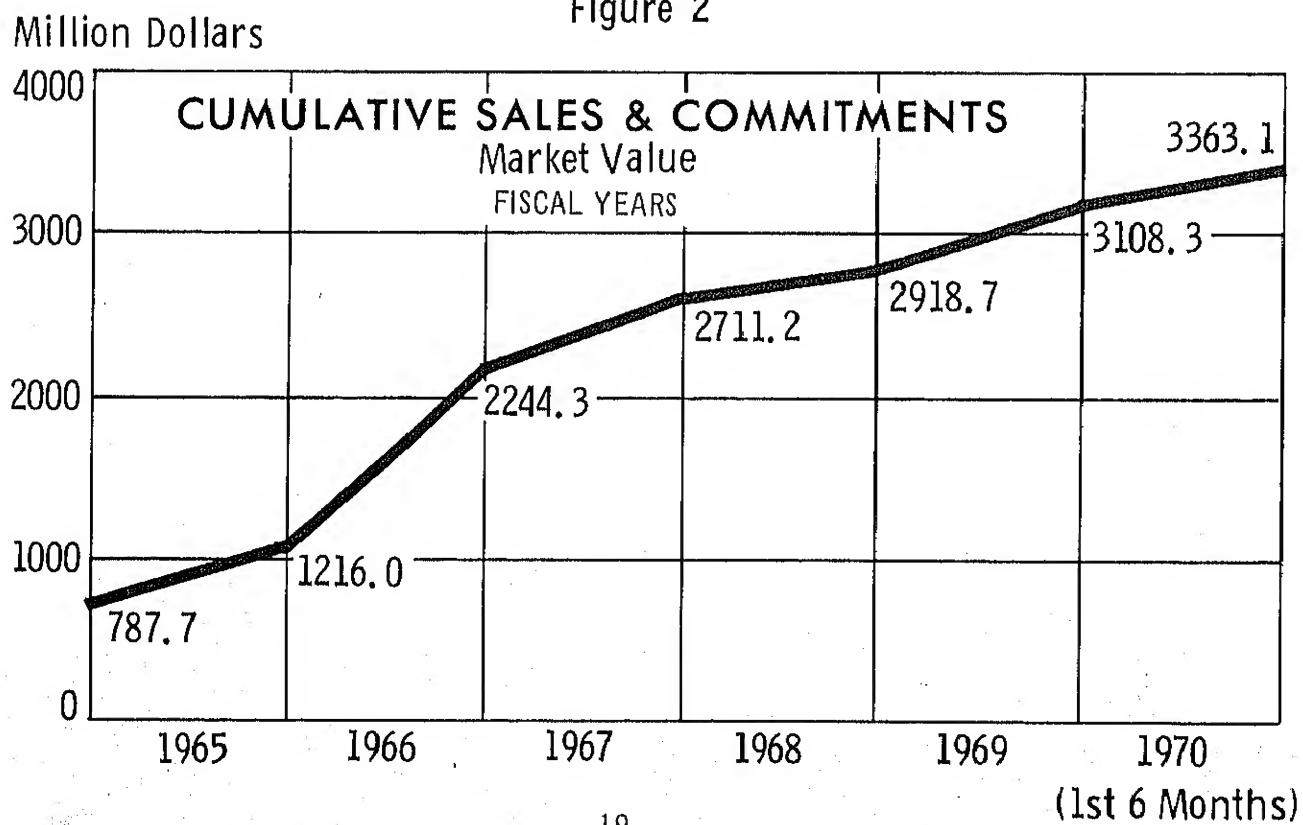


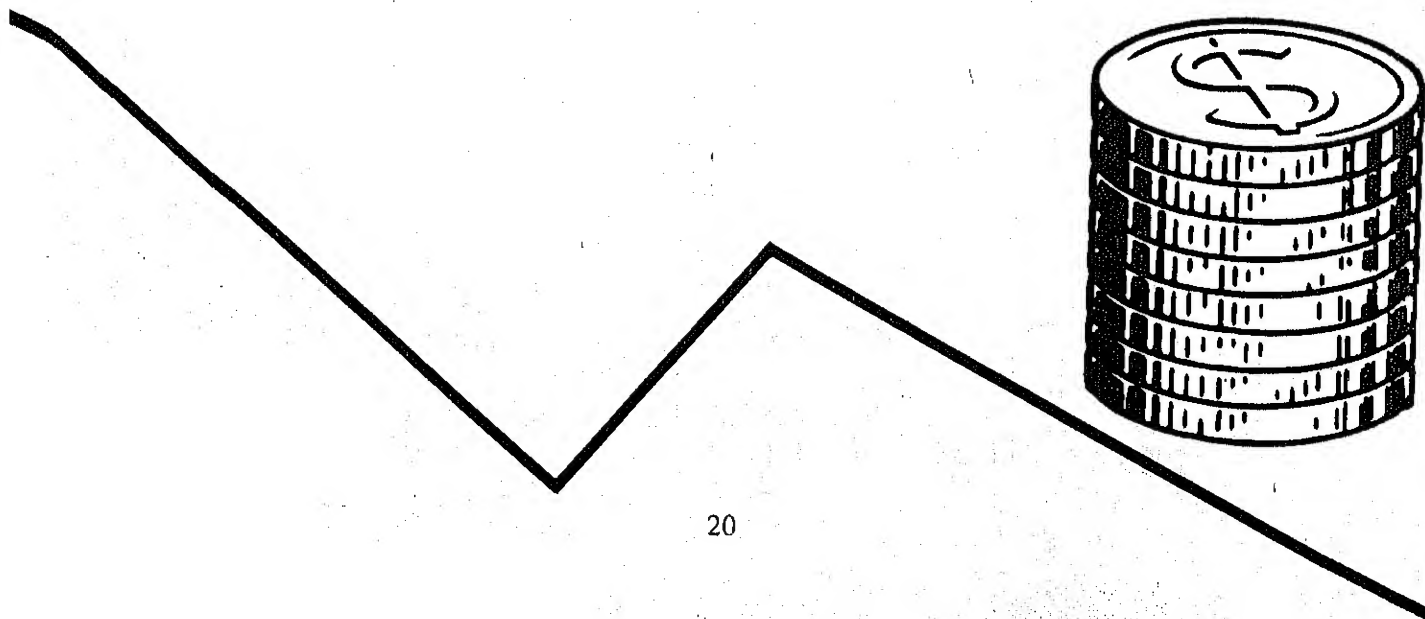
Figure 2



DISPOSALS OF STRATEGIC AND CRITICAL MATERIALS

July - December 1969

Sales Commitments					
Material	Unit	Quantity	Government Use	Industrial Use	Total Sales Value
NATIONAL AND SUPPLEMENTAL STOCKPILE INVENTORIES:					
Aluminum	ST	34,588	\$	\$18,926,559	\$18,926,559
Asbestos, amosite	ST	1,394		246,352	246,352
Asbestos, crocidolite	ST	2,330		476,900	476,900
Bismuth	LB	149,930		599,720	599,720
Cadmium	LB	856,179	15,548	2,880,953	2,896,501
Chromite, chemical	SDT	5,320		68,350	68,350
Chromite, metallurgical	SDT	23,593		416,596	416,596
Cordage fiber, abaca	LB	7,659,450	254,317	979,650	1,233,967
Fluorspar, acid	SDT	200		5,000	5,000
Lead	ST	22,738	15,000	7,696,580	7,711,580
Magnesium	ST	7,967		5,102,359	5,102,359
Manganese, battery, synthetic dioxide	SDT	1,000		339,966	339,966
Manganese, metallurgical	SDT	19,069		275,183	275,183
Mica	LB	548,946		294,253	294,253
Molybdenum	LB	9,958,549		17,177,757	17,177,757
Quartz crystals	LB	64,325		407,057	407,057
Rare earths	SDT	760		337,437	337,437
Shellac	LB	1,782,497		177,703	177,703
Thorium	LB	1,585		4,777	4,777
Tin	LT	1,587	4,263,712	1,666,666	5,930,378
Vanadium	ST	677		3,492,941	3,492,941
Vegetable tannins:					
Chestnut	LT	1,000		97,440	97,440
Quebracho	LT	1,463	139,650	189,403	329,053
Wattle	LT	800	92,101	55,446	147,547
Zinc	ST	6,167	954,599	927,725	1,882,324
Total National and Supplemental Stockpiles			\$5,734,927	\$62,842,773	\$68,577,700

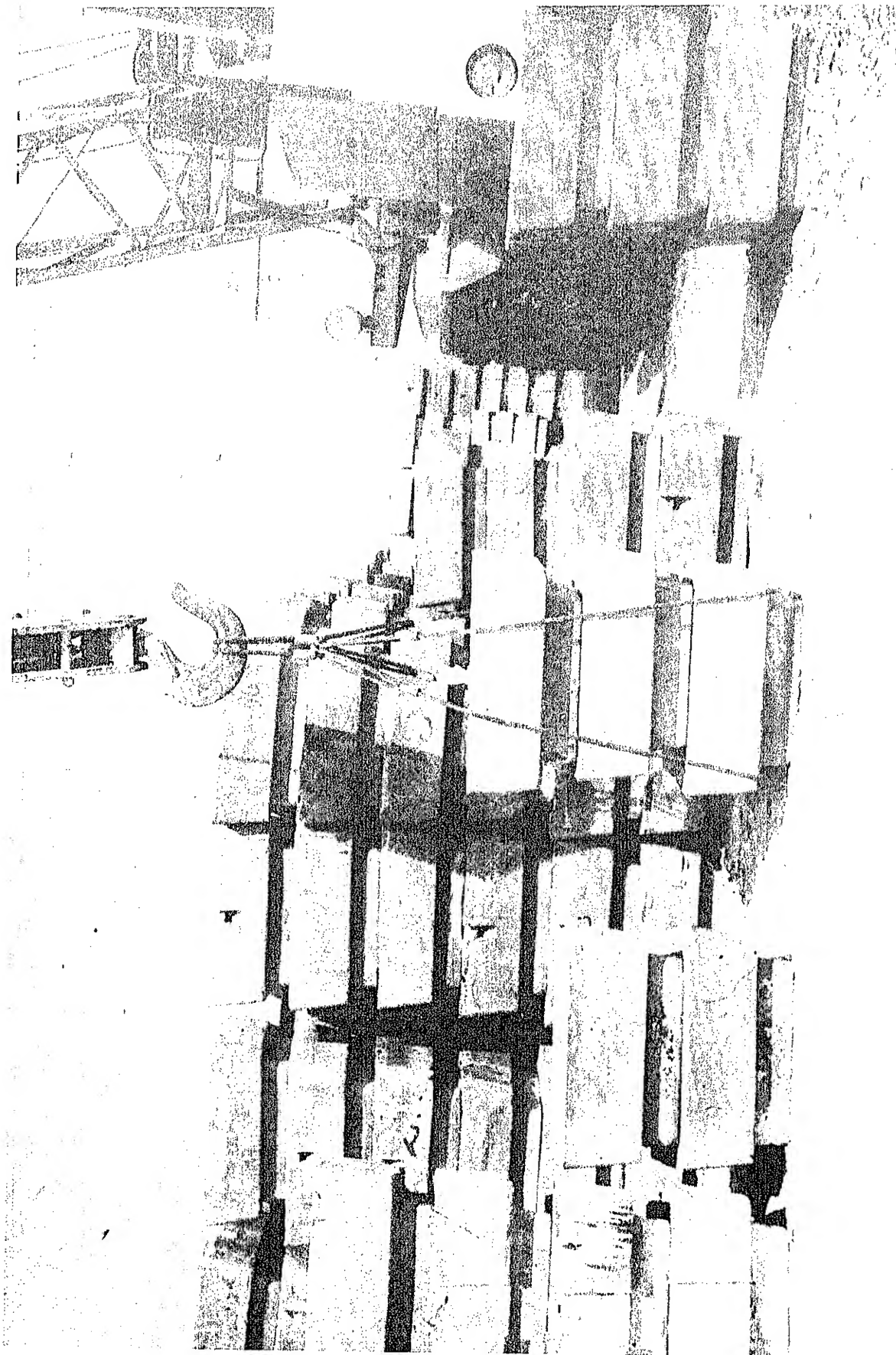


DISPOSALS OF STRATEGIC AND CRITICAL MATERIALS

July - December 1969 (Continued)

Material	Unit	Quantity	Sales Commitments		
			Government Use	Industrial Use	Total Sales Value
DEFENSE PRODUCTION ACT INVENTORY:					
Aluminum	ST	10,077	\$	\$ 5,488,740	\$ 5,488,740
Cobalt	LB	7,078,445	166,658	14,509,457	14,676,115
Columbium	LB	727,349		1,336,352	1,336,352
Manganese, metallurgical	SDT	1,478		10,812	10,812
Mica	LB	276,643		318,758	318,758
Titanium	ST	1,247		2,620,020	2,620,020
Tungsten	LB	26,785,473		70,618,196	70,618,196
Total DPA			\$ 166,658	\$94,902,335	\$95,068,993
OTHER (Non-stockpile inventories):					
Lithium	LB	2,125		999	999
Mercury	FL	807		398,912	398,912
Nickel	LB	9,000,000		10,295,761	10,295,761
Silver	Fine TrOz			18,020,550 ¹	18,020,550
Total OTHER				\$ 28,716,222	\$ 28,716,222
GRAND TOTAL			\$5,901,585	\$186,461,330	\$192,362,915

¹ Represents that portion of the total proceeds in excess of the U. S. monetary value based on \$1.2929 per ounce. Some 40,620,361 ounces of silver were sold at an average price of \$1.74.



Outshipment of excess lead approved for disposal under Public Law 91-46, enacted July 19, 1969.

LEGISLATION RELATIVE TO STOCKPILE DISPOSAL

Thirteen private and Administration disposal bills were proposed to the first session of the 91st Congress. Of these, one private bill authorizing disposal of 100,000 short tons of excess lead (PL 91-46) was enacted in July. One other private bill authorizing the release of cadmium passed the House and was pending in the Senate at the close of the first session. Ten other disposal bills were introduced in at least one of the two

houses, but had no action taken by the first session of the 91st Congress. One other Administration disposal proposal (for refractory chromite) was not introduced.

As of December 31, 1969, disposal plans for 11 other commodities were in various stages of agency clearance. These 11 proposals will be submitted early in the second session of the 91st Congress.

The status of stockpile disposal legislation as of December 31, 1969, is indicated in the following table:

STATUS OF STOCKPILE DISPOSAL LEGISLATION

Legislation Enacted

Material	Unit	Quantity	Market Value (\$ Millions)	Number	Action Date
Lead	ST	100,000	\$ 30.0	PL 91-46	7-19-69

Legislation Passed by House

Material	Unit	Quantity	Market Value (\$ Millions)	Bill No.	Date
Cadmium	LBS	4,180,000	\$ 14.6	H.R. 12941	12-1-69

Legislation Pending in House

Material	Unit	Quantity	Market Value (\$ Millions)	Bill No.	Date Introduced
Cobalt ¹	LBS	40,200,000	\$ 88.4	H.R. 15021	12-1-69
Fluorspar, acid (subspecification)	SDT	12,366	<u>0.3</u>	H.R. 14146	10-2-69
Total			\$ 88.7		

¹ Companion bill (S.3231) introduced in Senate.

Legislation Pending in Senate

Material	Unit	Quantity	Market Value (\$ Millions)	Bill No.	Date Introduced
Asbestos, chrysotile	ST	2,844	\$ 0.5	S. 3087	10-28-69
Castor oil	LBS	18,500,000	2.8	S. 3089	10-28-69
Corundum	ST	1,952	0.1	S. 3083	10-28-69
Diamond, industrial:					
crushing bort	KT	17,900,000	40.3	S. 3086	10-28-69
Manganese, chemical,					
Type A	SDT	111,900	7.8	S. 3084	10-28-69
Manganese, chemical,					
Type B	SDT	65,800	3.3	S. 3082	10-28-69
Shellac	LBS	4,300,000	1.8	S. 3085	10-28-69
Tungsten	LBS	100,000,000	<u>277.7</u>	S. 3088	10-28-69
Total			\$334.3		

Proposed but Not Introduced

Material	Unit	Quantity	Market Value (\$ Millions)	Date Proposed
Chromite, refractory	SDT	826,900	\$ 12.6	11-28-69

Plans in Development Proposals Planned for Second Session, 91st Congress

Material	Unit	Quantity	Market Value (\$ Millions)
Bauxite, metal, Surinam . .	LDT	2,600,000	\$ 39.8
Bismuth	LBS	300,000	1.8
Diamond, industrial:			
stones	KT	4,950,000	64.4
Fluorspar, acid	SDT	200,000	11.1
Graphite, Ceylon	ST	386	0.1
Lead	ST	498,000	164.2
Magnesium	ST	12,000	8.8
" battery,			
.	SDT	173,800	10.2
. . .	FL	73,700	35.9
. .	LBS	3,500,000	6.1
. . .	ST	515,200	<u>159.7</u>
Total			\$502.1

NOTES ON STRATEGIC AND CRITICAL MATERIALS DISPOSAL ACTIVITIES JULY-DECEMBER 1969

Aluminum

Primary aluminum sales commitments under the November 1965 long-term purchase agreements totaled 44,665 short tons, valued at \$24.4 million. This was a decrease below sales of 92,645 short tons, valued at \$49.8 million, in the January-June period; however, it is an increase over the sales of 26,701 short tons, valued at \$14.0 million, in the corresponding July-December 1968 period. Cumulative sales under the aluminum disposal program, developed with primary producers of aluminum in 1965, now total 598,269 short tons, valued at \$302.2 million, leaving 850,255 short tons to be taken pursuant to Government contracts with major producers.

Cadmium

Disposals of cadmium amounted to 856,179 pounds, valued at \$2.9 million. These sales exhausted the authority to dispose of cadmium conferred by Public Law 88-319, June 12, 1964. Efforts are being made to expedite the passage of pending legislation which would authorize disposal of the remaining 4.1 million pounds of current excess cadmium since world demand for this material is still strong.

Cobalt

As the result of the prolonged nickel strike, cobalt sales continued at a strong pace totaling approximately 7.0 million pounds, valued at \$14.7 million. The cobalt disposal plan was revised in October

due to the demand for cobalt as a partial substitute for nickel. The revised plan offered 2 million pounds of cobalt per month, beginning in November, on an off-the-shelf basis with material restricted to domestic consumption. It is anticipated that the Defense Production Act excess will be completely sold by February 1970. Total cobalt disposals since the inception of the cobalt disposal program amount to 21.4 million pounds, valued at \$38.8 million, leaving 2.4 million pounds available for sale starting January 1. Legislation to authorize sale of 40.2 million pounds of excess cobalt remaining in the National and Supplemental Stockpiles was pending when the first session, 91st Congress adjourned.

Lead

Commercial disposals of excess stockpile lead resumed during the period with passage by the Congress of a private industry-sponsored lead disposal bill (PL 91-46, July 19, 1969), which authorized disposal of 100,000 short tons of excess lead. During the period, 22,738 short tons of lead, valued at \$7.7 million, were sold. Of this amount, approximately 15,000 short tons were in the form of antimonial lead, where sales not only aided the tight lead situation, but also helped ease the pressure in the antimony market. As the year ended, discussions were underway with producers of primary lead and zinc on development of long-range disposal programs covering the excesses of both commodities.

Magnesium

Magnesium disposals totaled approximately 8,000 tons, valued at \$5.1 million. Strong demand for stockpile excess magnesium exists and the disposal program will continue through 1970. Stockpile disposals of excess magnesium have helped keep the magnesium market in balance as demand has continued for the past year to exceed domestic production capability. Disposal planning on 12,000 short tons of magnesium excess resulting from the FY 1970 objective review was underway at year end.

Molybdenum

For 1½ years, GSA had limited success in selling molybdenum under its shelf item disposal program. Industry views were requested on changing the method of sale to sealed-bid. The industry response indicated that sealed-bid sales would disrupt the market and suggested negotiated sales to domestic producers. Industry and GSA considered this to be a more orderly method of introducing molybdenum into the market. In late July, GSA discussed this procedure with the domestic producers. The agreement with four of the principal producers resulted in contracts providing for long-term deliveries over a period of 8 years based on the pro rata share of production of each producer. Approximately 3 million pounds were reserved for off-the-shelf sales to all eligible purchasers including small business consumers.

On October, contracts were executed for a maximum Molybdenum covering 8.4 million pounds, valued at \$14.0 million;

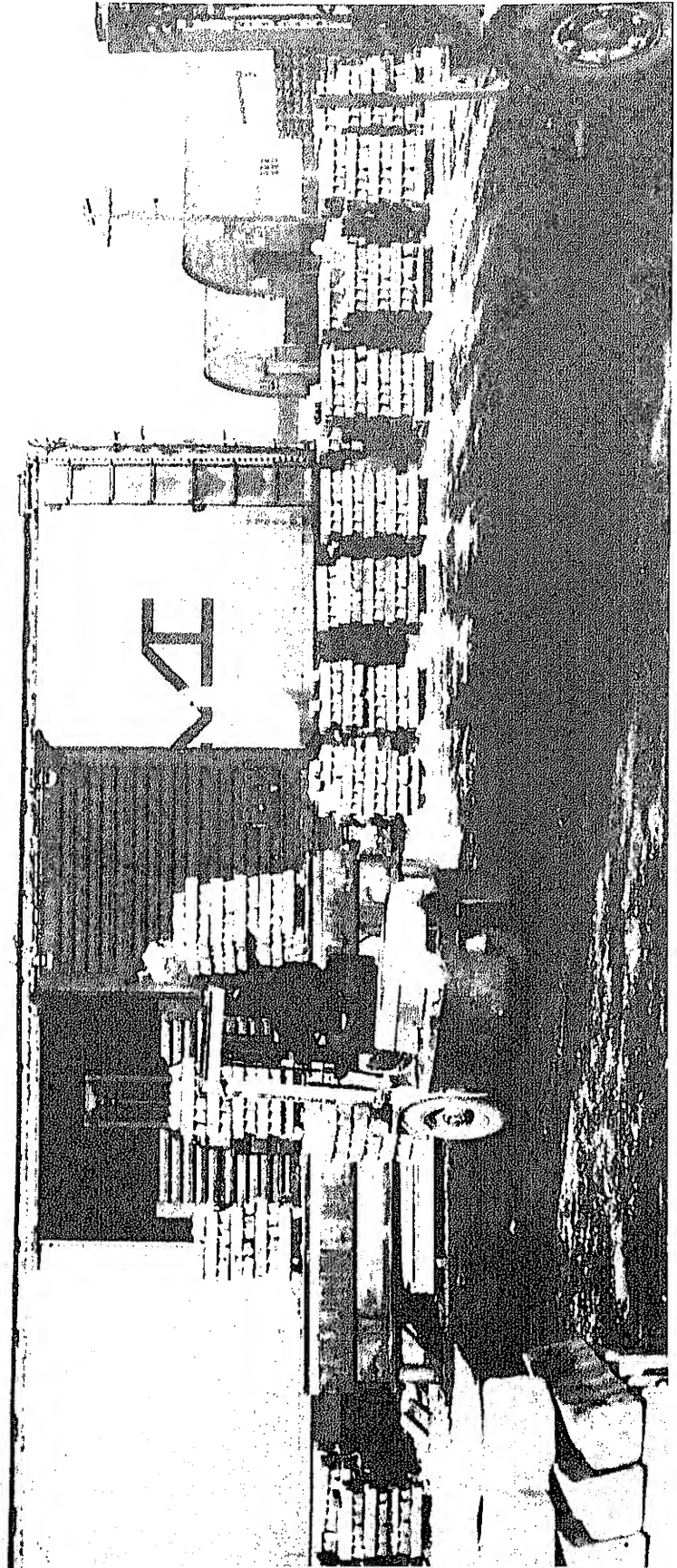
Molybdenum Corporation, 1.3 million pounds, valued at \$2.3 million; Duval Corporation, 2.1 million pounds, valued at \$3.6 million; and Magma Copper Company, 400,000 pounds, valued at \$0.7 million.

Nickel

Nickel strikes against the two major free world producers of primary nickel drastically curtailed nickel availability during FY 1970. During July to November, when the strikes were in effect, nearly 200 million pounds of primary nickel production were lost. U.S. monthly availability of nickel fell from more than 28 million pounds per month of primary nickel to about 9 million pounds per month.

Government efforts to ease the situation included the release, on November 5, of 9 million pounds of nickel from the stocks of the U.S. Mint which were used to fill defense rated orders in November and December, and the release by President Nixon on December 15, under Section 5 of the Strategic and Critical Materials Stock Piling Act, of 20 million pounds of nickel from stockpiles for the purpose of common defense.

The stockpile release of nickel took the form of a loan rather than sale with the arrangements calling for the stockpile to lend nickel to any of the three primary nickel producers, who are subject to the set-aside provisions of the Defense Materials System. These firms would have to agree to distribute nickel in accordance with instructions provided by the Business and Defense Services Administration of the Department of Commerce. The three



Magnesium loading from northern storage site. Outshipments of excess continue in spite of the weather

firms eligible to participate were Hanna Nickel Smelting Company, Kaiser LeNickel Corporation, and the International Nickel Company, Incorporated.

The one firm (INCO) which accepted the Government's conditions agreed to distribute stockpile nickel under a contract providing for later replacement of nickel to the Government. The quantity of nickel to be returned will be equivalent in value to the nickel released plus interest earned, less the processing and handling costs. INCO, in accepting the Government's conditions, also agreed to aid the small business firms injured by the strike by increasing the amount of nickel which would be made available to plating houses, distributors, etc., i.e., those who distribute to small business nickel users.

The nickel being released, while appropriate for meeting certain current industry requirements, was of lower quality than that which will be acquired for the stockpile. Thus, in addition to easing the domestic nickel situation, the stockpile inventory will be upgraded when the nickel is replaced.

Silver

Sales of Treasury silver (not included in stockpile inventories) totaled 40.6 million troy ounces, valued at \$70.5 million. The amount of revenue returned to the Treasury over and above the monetary value totaled \$18.0 million, or \$3.2 million less than in the first half of calendar year 1969. Total disposals during July-December were less than disposals during January-June due to the reduction in the program announced in May wherein dis-

posals were reduced from a minimum of 2 million troy ounces per week to a minimum of 1.5 million troy ounces per week. Silver sales are expected to terminate sometime in FY 1971.

Legislation that would permit GSA to sell unissued Carson City silver dollars, as a collector's item, was pending at the close of the first session of the 91st Congress. If this legislation should pass, silver dollar sales would begin in late calendar year 1970.

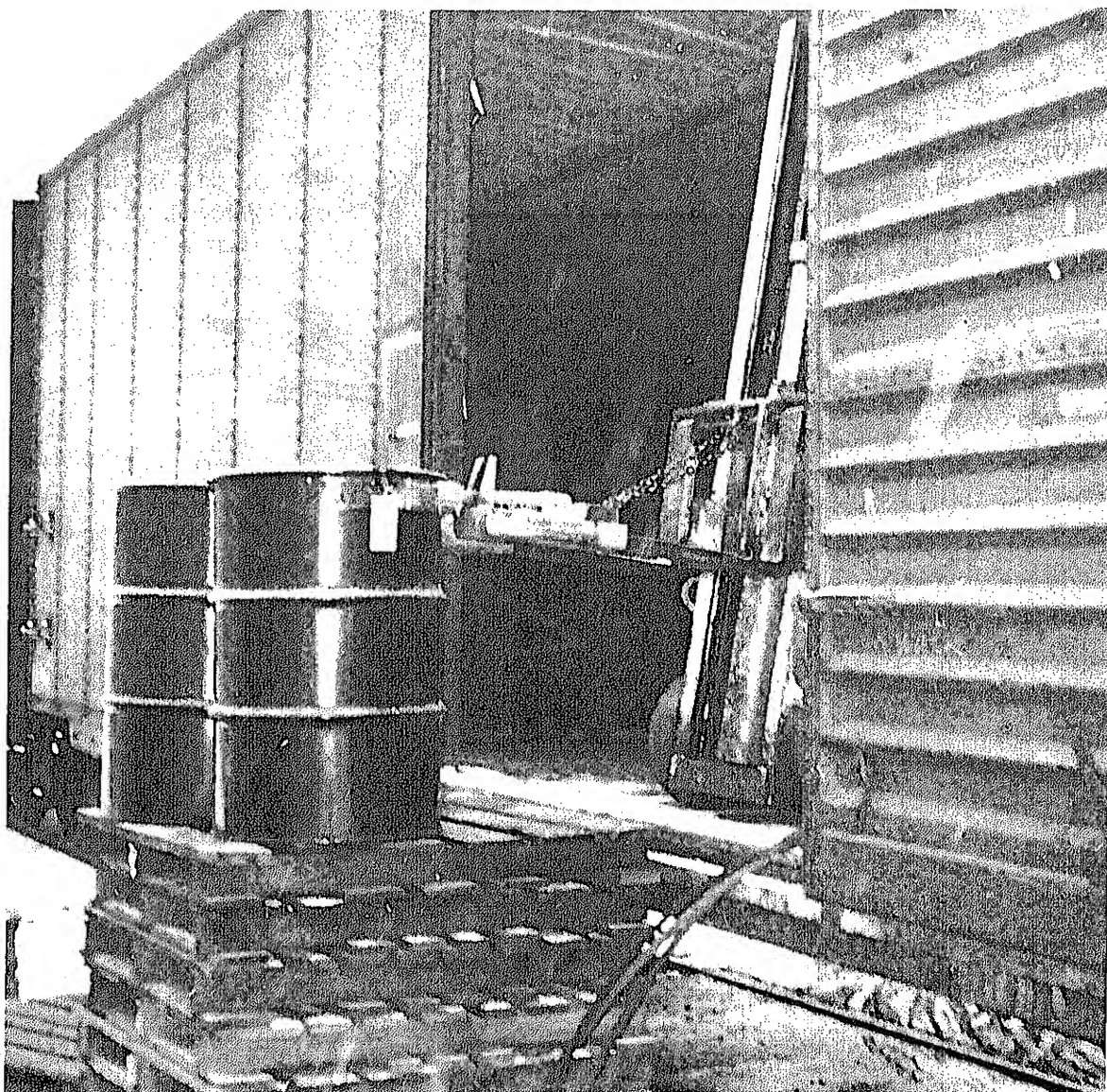
Tungsten

Tungsten disposals totaled 26.8 million pounds, valued at \$70.6 million, leaving only 2.2 million pounds, valued at \$9.9 million, available from the Defense Production Act inventory for sale as of December 31, 1969. Strong tungsten demand was primarily the result of a general worldwide shortage of tungsten, in which world traders were buying from the Defense Production Act excess inventory and reselling in European markets. A tungsten disposal bill which would authorize the release of 100 million pounds of tungsten from the National Stockpile, valued at more than \$270.0 million, was introduced by Senator Brooke on October 28, 1969. No action had been taken by the Senate on this bill when the first session closed. Disposal authority for this tungsten will be necessary if stockpile disposals are to retain their steadying influence on the world tungsten market.

As the year ended, there was a possibility that some additional Defense Production Act inventory tungsten might be made available for disposal due to objec-

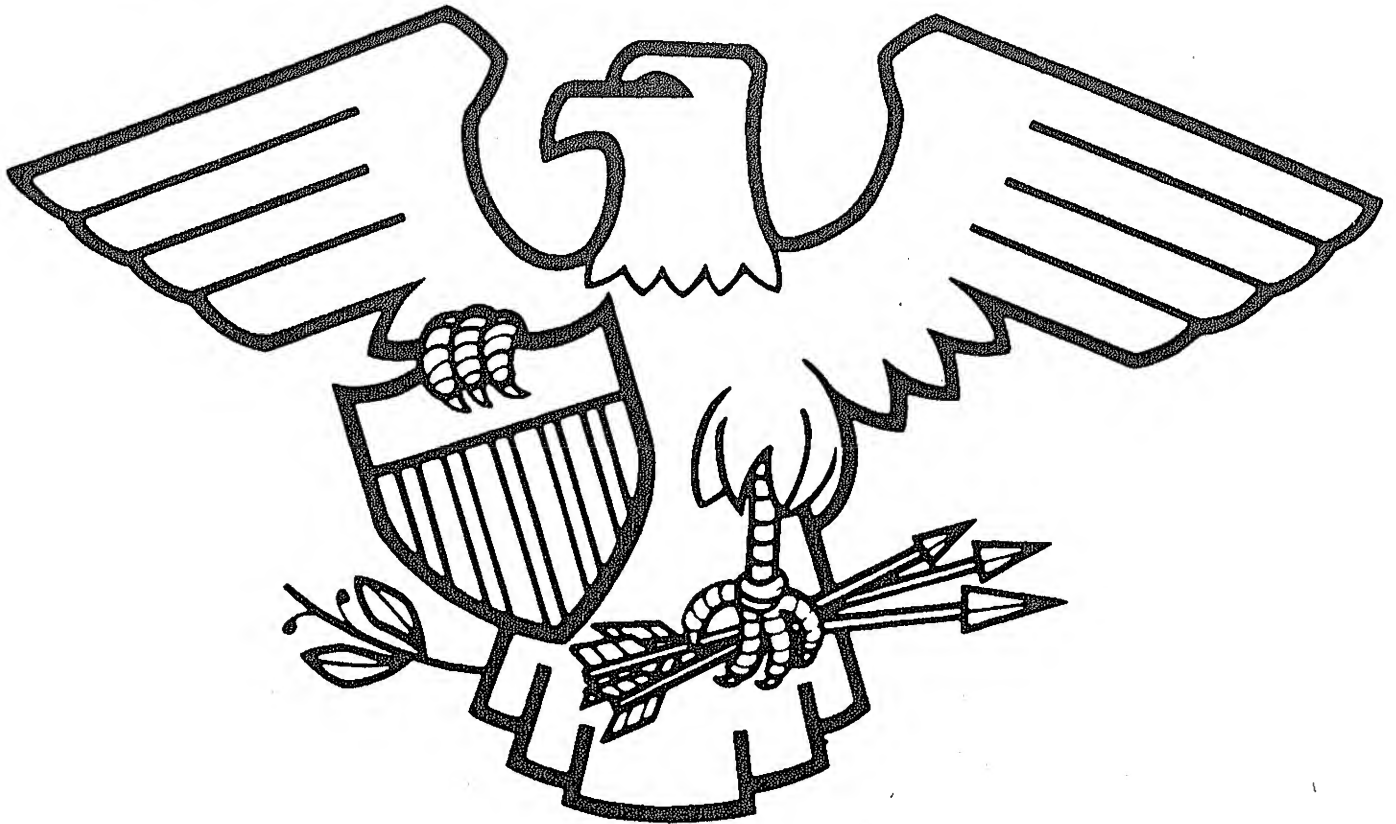
tive recrediting between inventories. As of December 31, 1969, total tungsten disposals from the DPA excess inventory were 57.2 million pounds, valued at \$148.0

million. Even with some additional DPA tungsten excesses, this program, which began in 1965, will most probably end in calendar year 1970.



Excess tungsten loading aboard railroad cars for delivery to purchasers.

GOVERNMENT ACTIVITIES



**General Service Administration
Department of Commerce
Department of State
Department of Agriculture
Department of Interior
Bureau of Mines
U.S. Geological Survey**

ACTIVITIES OF THE GENERAL SERVICES ADMINISTRATION RELATING TO STOCKPILING OF STRATEGIC AND CRITICAL MATERIALS

The General Services Administration is charged with the general operating responsibility, under policies set forth by the Office of Emergency Preparedness, for stockpile management, including (1) purchasing and making commitments to purchase, transferring, rotating, upgrading, and processing of metals, minerals, and other materials; (2) expansion of productive capacity through the installation of additional equipment in Government-owned plants and the installation of Government-owned equipment in privately-owned facilities; (3) storage and maintenance of all strategic materials held in Government inventories; and (4) disposal of excess stockpile mate-

rials, including the development of disposal plans, selling the materials and providing for Government-use of such materials.

The activities of the General Services Administration, particularly in connection with procurement, upgrading, and disposals, have been summarized in the earlier sections of this report.

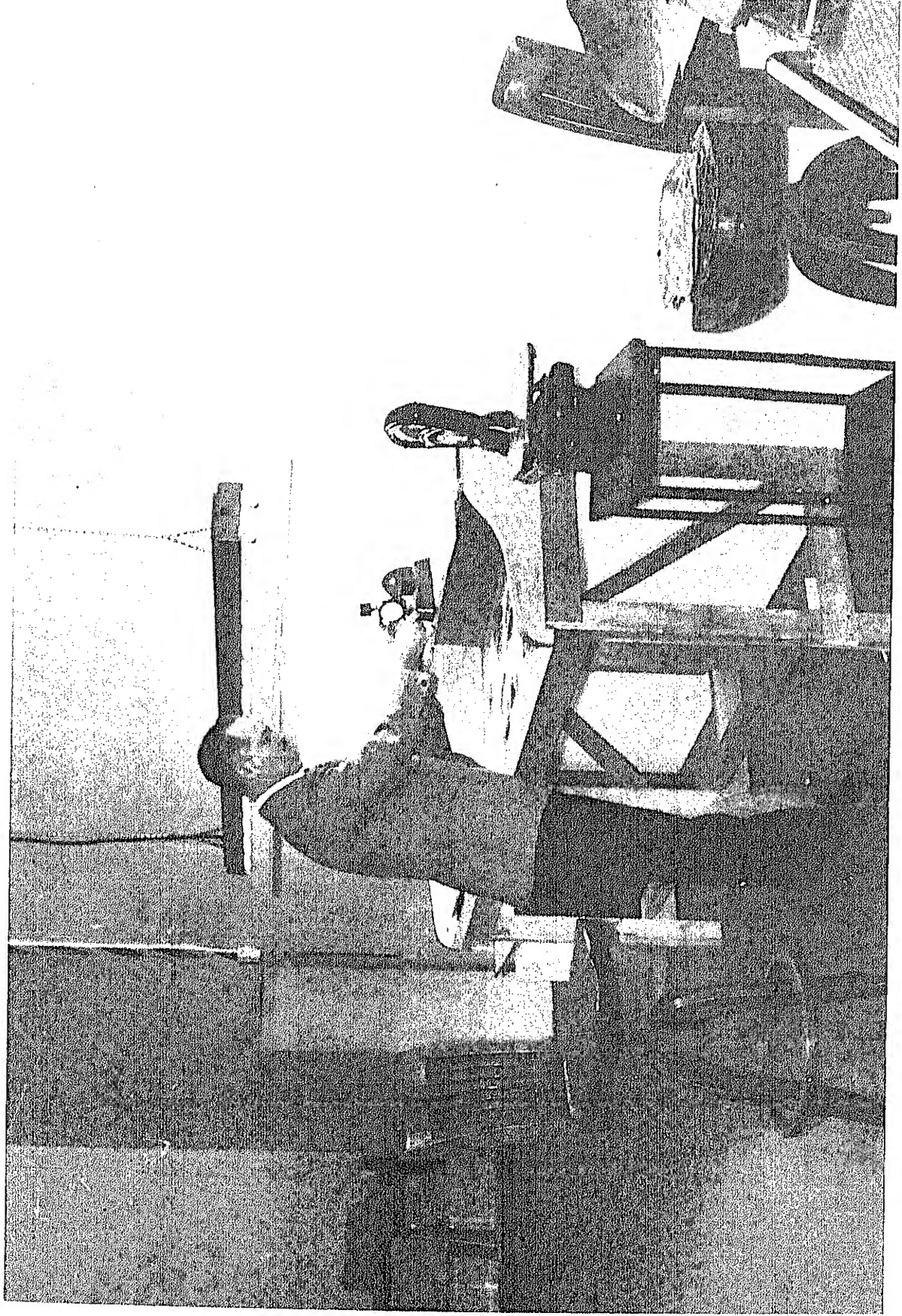
STORAGE AND MAINTENANCE

On December 31, 1969, there were 46.1 million tons of strategic materials stored at 137 locations as follows:

	As of December 31, 1969	Change in last 6 months
Military depots	35	-1
GSA depots	30	
Other Government-owned sites	18	
Leased commercial sites	12	-1
Industrial plantsites	39	
Commercial warehouses	<u>3</u>	<u>-1</u>
Total	137	-3

One commercial warehouse in Lawrence, Massachusetts, one military depot in Denver, Colorado, and a Government-owned site in Hastings, Nebraska, were emptied of stockpile materials during the period.

In addition, a leased site in Yreka, California, was released to the State for highway purposes after the ore stockpiled there was transferred to an adjacent Government-owned site.



Mica grading by GSA inspector.

ACTIVITIES OF THE DEPARTMENT OF COMMERCE RELATING TO STOCKPILING OF STRATEGIC AND CRITICAL MATERIALS

RESPONSIBILITIES

The Department of Commerce has been delegated a number of responsibilities with regard to the National Stockpile and these in turn have been assigned to the Business and Defense Services Administration within the Department. BDSA prepares for the Office of Emergency Preparedness estimates of essential civilian and war-supporting requirements for strategic materials in a mobilization period, a basic element in determining stockpile objectives. In certain limited cases, it also prepares estimates of the mobilization supply of such materials. It reviews plans for disposal of surplus stockpile materials and it provides OEP or GSA with its evaluation of the market impact of proposed schedules of sales. In addition, it develops recommendations in the matter of purchase specifications, special instructions, and storage procedures. It also prepares special studies for OEP regarding strategic material problems and in general submits to OEP on behalf of the Department recommendations or advice on stockpile policies and programs.

ESSENTIAL CIVILIAN AND WAR-SUPPORTING REQUIREMENTS

During July-December 1969, BDSA completed seven basic data studies of strategic and critical materials. This brought the program for basic data studies to within one-fifth of completion as 61 reviews of 76 requested reviews, under the revised guidelines of December 1968, had been completed by the end of the year.

The reviews for four of the stockpile items (aluminum, copper, Jamaica-type bauxite, and Surinam-type bauxite) resulted from a joint effort between OEP and BDSA and were not specifically listed in previous issues of this Report.

The seven stockpile items reviewed in the basic data studies submitted to OEP in the last 6 months of 1969 were: *acid-grade fluorspar, industrial diamond stones, iodine, iridium, magnesium, silver, and tantalum.*

DISPOSAL PROGRAMS

During the report period, 35 disposal recommendations were submitted to GSA on 31 materials. Three separate recommendations were made on cobalt because of a rapidly tightening market situation due to its increased use as a partial substitute for nickel during the work stoppage in Canada. Two recommendations were submitted in the case of molybdenum and cadmium.

Most of the recommendations (27) were reviews of disposal programs which operated successfully in FY 1969, but which required further analysis with respect to their appropriateness in FY 1970. After market analysis and consultation with industry, modifications were deemed necessary for several of these programs.

STOCKPILE PURCHASE SPECIFICATIONS AND SPECIAL STOCKPILE INSTRUCTIONS

Six revised purchase specifications were submitted to OEP for approval: *bis-*

muth, ferrotungsten, shellac, talc (steatite) block, talc (steatite) lump, and tin. It is essential that the purchase specifications for stockpile items be in keeping with current industrial standards not only for possible future acquisitions, but also for evaluating the quality of existing inventories and their usability in the event of a national emergency.

Five special instructions on the above mentioned items were submitted to OEP for approval. (In the case of steatite talc, the block and lump forms were covered by a single document.) These instructions provide GSA with the necessary criteria on crediting, storing, and maintaining the stockpile inventories.

SPECIAL STOCKPILE STUDIES AND RELATED ACTIVITIES

The following additional projects were carried out:

INDUSTRIAL DIAMOND

At the end of 1969, work was in

progress on an industrial diamond consumption survey of approximately 650 consumers. Information will be obtained on the usage of diamond stones, bort, grit and powder (natural and synthetic) including reclaimed material by end-users and size categories. The information is essential to stockpile disposal planning and will be useful in marketing and supply-requirement studies.

NICKEL

On November 6, the Secretary of Commerce announced that the Department of Commerce would allocate to industry the 9 million pounds of nickel declared excess by the Treasury to its coinage needs. On December 15, the President ordered the release of 20 million pounds of nickel from the strategic stockpile under Section 5 of the Strategic and Critical Materials Stock Piling Act of 1946. BDSA directed that the entire amount of the release be used in defense production, thereby releasing a like amount of nickel from commercial sources for nondefense uses.

ACTIVITIES OF THE DEPARTMENT OF STATE RELATING TO STOCKPIILING OF STRATEGIC AND CRITICAL MATERIALS

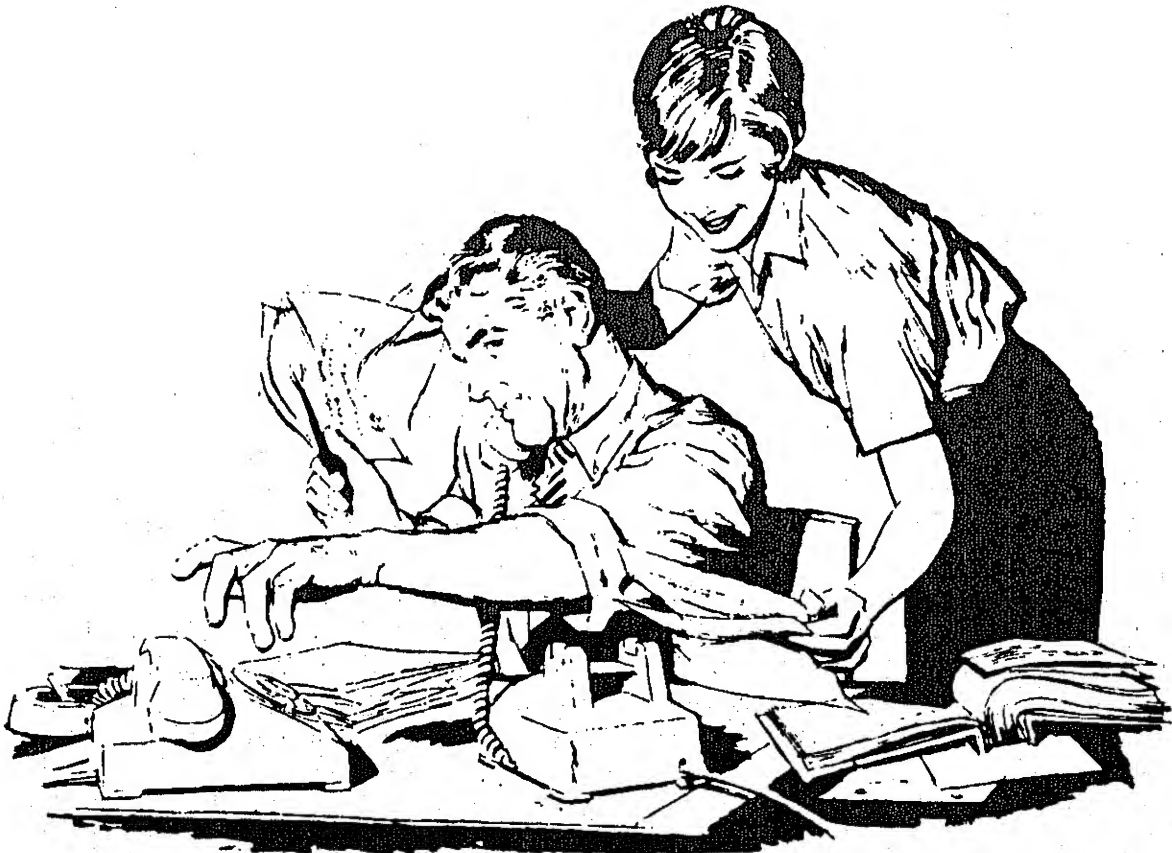
The Department of State provides guidance regarding the effects of stockpiling program activities on United States foreign relations and deals with problems which may arise out of these activities.

The Department participates with other agencies in the periodic review of the supply and demand situation for each of the stockpiled materials and in the development of related stockpile objectives. It also provides estimates of political and economic reliability of foreign sources of supply in time of national emergency.

In regard to the disposal of surplus materials from the stockpile, the Department shares in the development of disposal plans suited to the particular situation in each material and conducts appropriate

consultations with interested foreign governments about each plan. Based on these consultations, an evaluation is made of the political and economic effects of disposals on friendly foreign countries and on foreign relations of the United States. As necessary, recommendations are made for the adoption or modification of the proposed disposal plans.

During July-December 1969, the Department conducted numerous consultations with foreign governments concerning new disposal plans and modification of existing programs. In addition, it responded to representations made by foreign governments concerning the effects of disposal programs and revisions of stockpile objectives on their economy and trade.



ACTIVITIES OF THE DEPARTMENT OF AGRICULTURE RELATING TO STOCKPILING OF STRATEGIC AND CRITICAL MATERIALS

COTTON TRANSFERRED FROM STOCKPILE FOR DISPOSAL

On July 1, 1969, there remained in inventory 5,048 bales of ex-stockpile American-Egyptian cotton which the General Services Administration had transferred to the Commodity Credit Corporation in 1957 and 1962. By September 3, CCC sales had reduced this cotton inventory to zero.

BARTER ACTIVITIES

No barter contracts for strategic materials for subsequent transfer to the Supplemental Stockpile were signed during July-December 1969. The only strategic material remaining to be delivered to the Commodity Credit Corporation for subsequent transfer to the stockpile under existing contracts is diamond dies. During the report period, diamond dies valued at \$65,000 were delivered to CCC, bringing the cumulative total of strategic materials delivered to CCC since 1950 to approximately \$1.6 billion. Of this total, through December 31, 1969, \$223.3 million in strategic materials have been transferred to the National Stockpile and about \$1.4 billion to the Supplemental Stockpile.

EXPANSION OF DOMESTIC SOURCES OF SUPPLY

Eight lots of *Atropa belladonna*, nine lots of *Digitalis lanata*, two lots of *Digitalis purpurea*, and eight elite lines of *Papaver somniferum* are maintained in storage at the National Seed Storage Labora-

tory, Fort Collins, Colorado. The stocks are considered sufficient to meet national production needs in the event of an emergency. Stocks will be rejuvenated periodically whenever they reach a critical stage of low viability.

PROTECTION OF STOCKPILE ITEMS

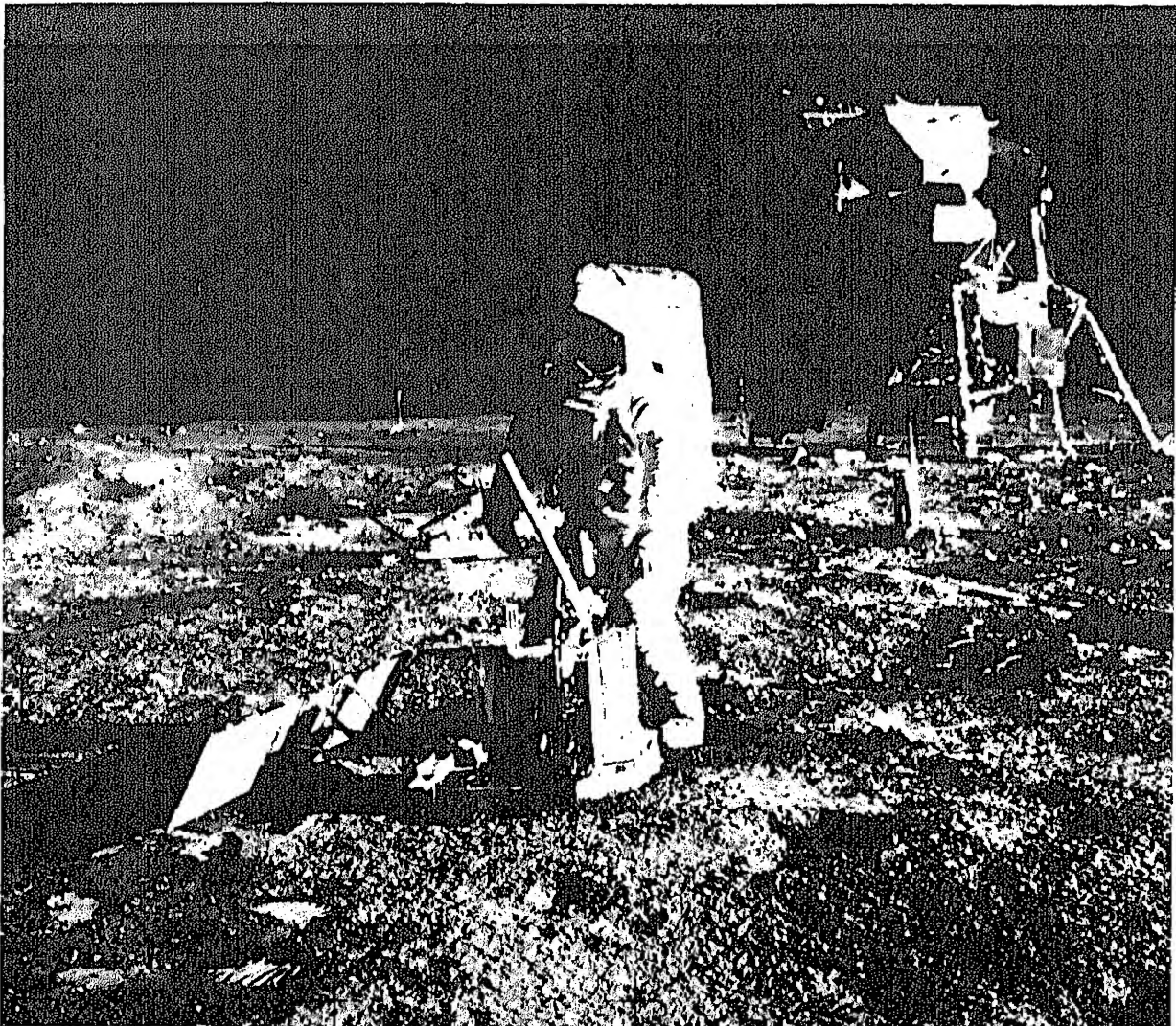
Several years ago the Stored Products Insects Research Branch of the Agricultural Research Service developed a method of DDT treatment to protect feathers and down in the National Stockpile against insect damage during storage. Damage can be severe to unprotected materials. The General Services Administration, responsible for stockpiling strategic materials, has inquired about the use of the DDT treatment in view of recent restrictions on insecticides. Currently this treatment can continue because this is a commercial rather than a home treatment. Future actions could jeopardize the application and no suitable substitute is now available. Research on another material that could be a satisfactory alternate has not been completed.

Through forest products research, new packaging methods and materials have been developed which may prove useful in the handling and storing of materials in the National Stockpile. For example, design criteria based on resistance of nailed cleats to realistic lateral shock forces have been developed to aid in proper design and application of blocking and bracing to prevent freight damage due to inadequate fastening of wood blocking and bracing in

rail cars. Use of this technique will aid in safe cross-country shipment of large, bulky items.

Cushioning materials, such as foamed plastics, are relatively expensive and create a disposal problem. In contrast, corrugated fiberboard pads made from waste produced in corrugated container manufacture

are readily available at small cost. Design criteria are being developed to enable packaging engineers to take advantage of the desirable inherent cushioning characteristics of corrugated pads and allow their use where applicable. This will provide economical, effective cushioning for shipment of sensitive, easily damaged materials.



Man on the moon, July 20, 1969

ACTIVITIES OF THE DEPARTMENT OF THE INTERIOR RELATING TO STOCKPILING OF STRATEGIC AND CRITICAL MATERIALS

The Department of the Interior is responsible for the management, conservation, and development of the Nation's natural resources to meet the requirements of national security and an expanding economy. The Department provides advice and assistance to the Office of Emergency Preparedness in formulating and carrying out programs for the stockpiling of strategic and critical materials. The Department of the Interior conducts research in exploration, mining, beneficiation, and metallurgy and compiles information on production and consumption for use in stockpile planning.

The Department is responsible for emergency preparedness planning with respect to strategic metals and minerals and other resources. It conducts supply-requirements studies when market conditions or other circumstances indicate problem areas in which materials are likely to be in short supply and recommends appropriate action to overcome deficiencies. The Department also administers programs to encourage the exploration, development, and mining of minerals and metals for emergency purposes.

RUTILE EXPANSION PROGRAM

The establishment of the domestic rutile production expansion on January 23, 1967, by the Office of Emergency Preparedness and the subsequent DPA programs on rutile within the Department of the Interior have generated considerable industry interest and activity. Byproduct recovery of rutile and development of

processes to produce and use substitutes for natural rutile are the most promising approaches to improve the domestic mobilization base for titaniferous raw materials.

There are extensive commercial ilmenite resources in the United States, while domestic reserves of rutile are not competitive with foreign sources and represent less than 2 percent of the total titanium reserves in the United States. Therefore, laboratory investigations are being carried out aimed at recovering a high grade titanium dioxide produce (synthetic rutile) from the mineral ilmenite. The Bureau of Mines is also investigating methods for recovering valuable titanium metal and compounds from various metallic and chemical wastes in the titanium industry.

STOCKPILE DISPOSALS

The Office of Minerals and Solid Fuels continued to coordinate the work of the Department of the Interior in the formulation of programs authorized by OEP for the disposal of surplus Government inventories of strategic and critical materials. Representatives of industry were consulted in the development of disposal plans.

RESOURCE DEVELOPMENT

The Bureau of Mines continued technical and economic evaluation studies on various chemical techniques for recovering alumina from low-grade alumina-bearing resources that, from the standpoint of various factors such as grade, quantity, and

location, may eventually be utilized. Studies are underway to develop improved solvent extraction technology for recovering metallurgical and/or refractory grade alumina from aluminum-bearing process and waste solutions.

RESEARCH ACTIVITY

The Bureau of Mines continued research to develop improved techniques for the dehydration of bischofite ($\text{MgCl}_2 \cdot 6\text{H}_2\text{O}$) for use in the electrolytic production of magnesium metal. At the same time, electrolytic and chemical reduction studies for the preparation of high purity beryllium metal were completed.

EXPLORATION

Recent geochemical studies by the Geological Survey in the Coeur d'Alene district, Idaho, have established certain relationships between the distribution of minor elements and the distribution of

base and precious metal deposits. Geochemical trends have been identified in the district, and are described in Open File reports. Mining company representatives have expressed much interest in the preliminary results of these studies and have stated that the data will improve the efficiency and effectiveness of their exploration programs.

FIELD STUDIES

The field staff of Mineral Resource Evaluation, Bureau of Mines, is preparing a series of commodity availability studies based on domestic resources covering strategic and critical metals and minerals. Results will be published in the Bureau's Information Circular series.

Special and technical reports, issued during July-December 1969, having a relationship to strategic and critical materials are as follows:

BUREAU OF MINES

Reports of Investigation

- | | |
|------|---|
| 7285 | Tensile and Stress-Rupture Properties of Rolled Pb-Cd-Sb Alloys. |
| 7292 | Magnetic Separation of Minerals of Low Susceptibility and Small Particle Size. |
| 7294 | Preparing Alkalized Alumina. |
| 7299 | Methods for Producing Alumina from Clay. An Evaluation of Two Lime Sinter Processes. |
| 7301 | Extraction of Copper from Oxides Using Iron and Steel Scrap. Principles and Application to Pure Systems. |
| 7307 | Vapor Pressures of Metal Halides. The $\text{CdCl}_2\text{-SnCl}_2$, $\text{CdCl}_2\text{-ZnCl}_2$, $\text{PbCl}_2\text{-SnCl}_2$, and $\text{PbCl}_2\text{-ZnCl}_2$ Binary Systems. |
| 7308 | Preparation of Rare-Earth and Yttrium Metals by Electrodeposition and Vacuum Distillation of Alloys. |
| 7311 | Relative Effects of Grouped Physical Variables on the Revenue-Cost System of a Lead-Zinc Mining Operation. |

- 7313 High-Purity Zinc and Tin by Amalgam Electrorefining.
 7315 Refining Zinc-Base Die-Cast Scrap Using Low-Cost Fluxes.

Journal Articles

- OP 65-69 Vapor Pressure of the Cadmium Chloride-Lead Chloride System.
 OP 73-69 Process Evaluation as a Guide for Magnesium Research.
 OP 75-69 Titanium Electrorefining.
 OP 89-69 Extractive Metallurgy of Titanium.
 OP 90-69 Vapor-Phase Deposition of Tungsten from Tungsten Hexafluoride and Hydrogen.
 OP 92-69 Effects of Interstitial Impurities on Twinning and Low Temperature Mechanical Properties of Electrorefined Vanadium.
 OP 105-69 Electrodeposition of Palladium and Platinum from Aqueous Electrolytes.
 OP 115-69 Technologic Gaps in Exploration and Exploitation of Sub-Sea Mineral Resources.
 OP 120-69 Electrodeposition of Molybdenum Coatings.
 OP 123-69 Separating Intermediate Phases from Zinc-Base Alloys.
 OP 132-69 Conservation of Mineral Resources.
 OP 139-69 Electrodeposition of Titanium Diboride Coatings.

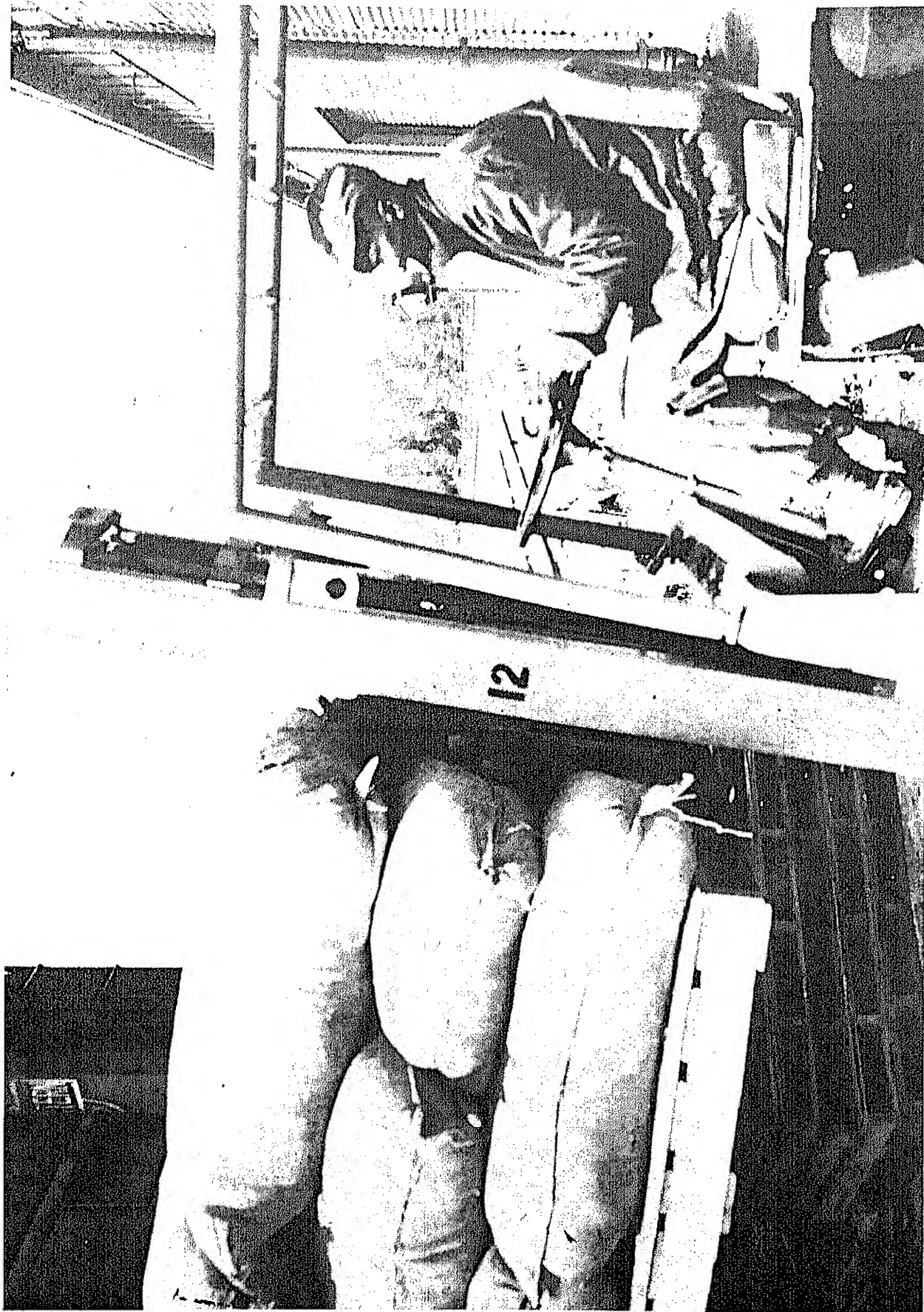
Technical Progress Reports

- TPR 18 Effect of Lowering the Tin Content of Secondary Red Brass.

GEOLOGICAL SURVEY

Professional Papers

- 608-A Geology and beryllium deposits of the Lake George (or Badger Flats) beryllium area, Park and Jefferson Counties, Colorado, by C. C. Hawley.
 618 Mineral investigations in Northeastern Thailand, by H. S. Jacobson, C. T. Pierson, U. S. Geological Survey, and staff of the Royal Thai Department of Mineral Resources (base metals, manganese, and others).
 625-A Distribution of gold and other metals in the Cripple Creek district, Colorado, by G. B. Gott, J. H. McCarthy, Jr., G. H. VanSickle, and J. B. McHugh (gold-silver-tellurium).
 625-D Lode mines and prospects in the Fairbanks district, Alaska, by R. M. Chapman and R. L. Foster (gold, lead, antimony, arsenic, silver, copper zinc, and tin).
 630 Economic geology of the platinum metals, by J. B. Mertie, Jr.
 650-C Geological Survey Research 1969 (short papers on analytical method and related subjects).



Asbestos outloading. Note the safety precautions required for handling this material

Bulletins

- 1261-F Mineral resources of the San Juan primitive area, Colorado, by T. A. Steven and J. J. Schmitt, Jr., U. S. Geological Survey, and M. J. Sheridan and F. E. Williams, U. S. Bureau of Mines, with a section on iron resources in the Irving Formation, by J. E. Gair and Harry Klemie, U. S. Geological Survey (molybdenum, gold).
- 1271-B Geology of the Hill City quadrangle, Pennington County, South Dakota, by J. C. Ratte and R. G. Wayland (gold, spodumene, tin, mica, beryl, feldspar, and tungsten).
- 1289 Atomic-absorption methods of analysis useful in geochemical exploration, by F. N. Ward, H. M. Nakagawa, T. F. Harms, and G. H. VanSickle.
- 1312-G Lead isotope guides for Mississippi Valley lead-zinc exploration, by R. S. Cannon, Jr., and A. P. Pierce.

Circulars

- 619 Subsea mineral resources and problems related to their development, by V. E. McKelvey, J. I. Tracey, Jr., G. E. Stoertz, and J. C. Vedder (manganese, copper, nickel, cobalt).

Map

- I-632 World subsea mineral resources, by V. E. McKelvey and Frank F. H. Wang (manganese, copper, nickel, cobalt, zinc).

EXPENDITURES OF STOCKPILE FUNDS, BY TYPE (for the National Stockpile)

Cumulative and for First Half Fiscal Year 1970

Type of Expenditure	Cumulative Through June 30, 1969	Six Months Ended December 31, 1969	Cumulative Through December 31, 1969
Expenditures			
Gross Total	\$6,505,332,897	\$6,694,382	\$6,512,027,279
Less: Receipts from Rotation Sales and Reimbursements	545,449,843	213,221	545,663,064
Net Total	5,959,883,054	6,481,161	5,966,364,215
Materials Acquisition Costs, Total	5,439,184,151	11,290	5,439,195,441
Stockpile Maintenance Costs, Total	440,484,919	4,206,457	444,691,376
Facility Construction	43,772,457		43,772,457
Storage and Handling Costs	293,946,819	4,215,171	298,161,990
Net Rotation Costs	102,765,643	-8,714	102,756,929
Administrative Costs	67,640,787	1,789,948	69,430,735
Operations, Machine Tool Program	12,573,197	473,466	13,046,663

Cumulative figures are the total of expenditures under PL 117, 76th Congress and PL 520, 79th Congress. Expenditures under PL 117 totaled \$70 million of which \$55,625,237 was for materials acquisition costs and \$14,374,763 was for other costs. Final expenditures under PL 117 were made in FY 1951.

Source: General Services Administration

TOTAL OBLIGATIONS AND EXPENDITURES OF STOCKPILING FUNDS

Under PL 117 and PL 520 for the National Stockpile
Cumulative and by Fiscal Period through December 31, 1969

Fiscal Period	OBLIGATIONS INCURRED ¹		EXPENDITURES ²	
	Net Change by Fiscal Period	Cumulative as of End of Period	By Fiscal Period	Cumulative as of End of Period
Prior to Fiscal Year 1948	\$123,871,685	\$123,871,685	\$66,330,731	\$66,330,731
Fiscal Year 1948	252,901,411	376,773,096	82,907,575	149,238,306
Fiscal Year 1949	459,766,881	836,539,977	304,486,177	453,724,483
Fiscal Year 1950	680,427,821	1,516,967,798	440,834,970	894,559,453
Fiscal Year 1951	2,075,317,099	3,592,284,897	655,537,199	1,550,096,652
Fiscal Year 1952	948,117,547	4,540,402,444	844,683,459	2,394,780,111
Fiscal Year 1953	252,375,163	4,792,777,607	906,158,850	3,300,938,961
Fiscal Year 1954	116,586,681	4,909,364,288	644,760,321	3,945,699,282
Fiscal Year 1955	321,799,833	5,231,164,121	801,310,094	4,747,009,376
Fiscal Year 1956 ³	251,692,667	5,482,856,788	382,011,786 ³	5,129,021,162 ³
Fiscal Year 1957	190,000,109	5,672,856,897	354,576,558	5,483,597,720
Fiscal Year 1958	54,473,250	5,727,330,147	173,753,997	5,657,351,717
Fiscal Year 1959	38,710,879	5,766,041,026	65,260,098	5,722,611,815
Fiscal Year 1960	19,859,290	5,785,900,316	49,227,142	5,771,838,957
Fiscal Year 1961	29,082,919	5,814,983,235	33,325,431	5,805,164,388
Fiscal Year 1962	31,179,407	5,846,162,642	33,695,431	5,838,859,819
Fiscal Year 1963	17,414,900	5,863,577,542	22,104,176	5,860,963,995
Fiscal Year 1964	15,489,597	5,879,067,139	16,091,067	5,877,055,062
Fiscal Year 1965	16,288,732	5,895,355,871	16,561,275	5,893,616,337
Fiscal Year 1966	16,296,070	5,911,651,941	16,468,100	5,910,084,437
Fiscal Year 1967	18,197,410	5,929,849,351	17,981,675	5,928,066,112
Fiscal Year 1968	16,008,237	5,945,857,588	15,902,213	5,943,968,325
Fiscal Year 1969	15,451,611	5,961,309,199	15,914,729	5,959,883,054
Fiscal Year 1970 - First Half	6,375,521	5,967,684,720	6,481,161	5,966,364,215

¹ Figures are the sum of obligations incurred under PL 520, 79th Congress and PL 117, 76th Congress. Final obligations under PL 117, 76th Congress were incurred in Fiscal Year 1949.

² Figures are the sum of expenditures under PL 520, 79th Congress and PL 117, 76th Congress. Final expenditures under PL 117, 76th Congress were made in Fiscal Year 1951.

³ 1956 and subsequent fiscal periods and cumulative expenditures are reported on an accrual basis.

Source: General Services Administration